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The Role of Inter-personal Networks in SME Internationalisation

Eberhard, Manuel

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THE ROLE OF INTER-PERSONAL NETWORKS IN SME INTERNATIONALISATION

Manuel Eberhard

Submitted in partial fulfilment of the requirements of the degree of Doctor of
Philosophy (with coursework component)

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Bond University

Australia

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Keywords

small- to- medium sized enterprises, internationalisation, inter-personal networks, formal, informal, family firm, slack resources, Australia

Abstract

This dissertation examines the relationship between managers' inter-personal networks and SME internationalisation. While several studies have explored the role of inter-personal networks, research has concentrated on explorative analysis, and neglected to establish an economic link between inter-personal networks and the actual internationalisation outcome. Limited research has devoted effort to examining how various types of inter-personal networks may differ in affecting firms' internationalisation. In addition, many studies have failed to include potentially moderating variables such as family ownership and the firm's resource endowments.

We argue that the confounding effects derived from inter-personal networks on SME internationalisation are determined by the means with which they are acquired, i.e. a formal versus informal setting. This dissertation's results indicate that, while formal inter-personal networks positively influence SME internationalisation, the opposite holds for informal inter-personal networks. The positive impact of formal inter-personal networks is weaker if the SME is a family firm, while the negative impact of informal inter-personal networks is reduced if the SME is a family firm. We further found evidence of a curvilinear moderating effect of recoverable slack resources on the relationship between formal inter-personal networks and SME internationalisation.

To obtain these results, we used multiple regression modelling to test the hypotheses developed in this dissertation. The results are derived from data of 2344 Australian SMEs collected over a period of 3 years by the Australian Bureau of Statistics. Implications for managerial practice and public policy are discussed.

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List of Abbreviations

Abbreviation	Definition
ABS	Australian Bureau of Statistics
ANZSIC	Australian and New Zealand Standard Industrial Classification
BLS	Business Longitudinal Survey
FDI	Foreign Direct Investment
INV	International New Venture
Eq.	Equation
JB	Jarque-Bera Statistic
JV	Joint Venture
M	Mean
R&D	Research & Development
RQ	Research Question
SD	Standard Deviation
SME	Small-to-Medium-Sized Enterprise
VIF	Variance Inflation Factor

Statement of Original Authorship

This thesis is submitted to Bond University in fulfilment of the requirements of the degree of Doctor of Philosophy. This thesis represents my own original work towards this research degree and contains no material which has been previously submitted for a degree or diploma at this University or any other institution, except where due acknowledgement is made.

Signature: Manuel Eberhard

Date: May 16, 2013

Publications Arising From This Thesis

Journal articles (peer-reviewed):

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Eberhard, M. & Craig, J.B. (2012). “The role of organizational and personal networks in exploring and exploiting opportunities in international markets”. *Academy of International Business Annual Meeting* (Washington D.C., USA)

Eberhard, M. & Craig, J.B. (2012). “The salience of network in the internationalization of family and non-family SMEs”. *12th IFERA Annual World Family Business Research Conference* (Bordeaux, France) *Nominated for Best Conference Paper Award*

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Eberhard, M. (2011). “Internationalization of family businesses: The salience of personal and professional networks”. *11th IFERA Annual World Family Business Research Conference* (Palermo, Italy)

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Chapter 1: Introduction

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1.1 RESEARCH ISSUE

With the rapidly changing global trading environments, an international focus becomes increasingly important in firm strategy. Not only do imports progressively challenge firms in their domestic markets, but new opportunities are also arising for these same firms in foreign markets (Chetty & Agndal, 2007). Internationalisation has been favourably regarded due to the substantial macro- and microeconomic benefits. In macroeconomic terms, internationalised firms contribute to socio-economic development by increasing employment opportunities, generating foreign exchange, and reducing national deficits (Katsikea & Skarmas, 2003; Leonidou, Katsikeas, & Piercy, 1998). From a microeconomic perspective, firms are strengthening their international focus with the hope that doing so will enhance existing managerial skills and capabilities and help orchestrate firm resources better (Katsikea & Skarmas, 2003). By accessing larger markets, internationalised companies achieve economies of scale and scope, increase manufacturing efficiencies, recoup investments more efficiently, and gain access to foreign technological, marketing, and management skills (Manolova, Manev, & Gyoshev, 2010; Zhou, Wu, & Luo, 2007), all of

which contribute to a sustained competitive advantage (Lages & Montgomery, 2004; Leonidou & Katsikeas, 1996).

Internationalisation is not only important for large corporations. Though often perceived as constrained by limited resources, market power, and access to comprehensive market research (Musteen, Francis, & Datta, 2010), small and medium-sized enterprises (SMEs) also benefit from entering and expanding into international markets (Chetty & Campbell-Hunt, 2003; Wright, Filatotchev, Hoskisson, & Peng, 2005). However, their internationalisation is far from linear, controlled and time-prolonged as proposed by the traditional stage theories (Etemad & Wright, 2003). Instead, prior research demonstrates that network ties, both between firms and between individuals, play an important role for SMEs in the pursuit of international opportunities (Chen & Chen, 1998; Ellis, 2000; Zhou et al., 2007).

In their earlier review of the export literature, Leonidou and Katsikeas (1996) demonstrated that existing models provide only a limited explanation of firms' internationalisation behaviour. They conclude that models of network relationships could improve understanding in this area and call for future research that incorporates a relationship lens. To date, a large body of literature has acknowledged the importance of network relationships in the internationalisation of SMEs (e.g., Chetty & Campbell-Hunt, 2003; Mesquita & Lazzarini, 2008). Nevertheless, research that employs the network approach of internationalisation has mostly concentrated on inter-firm business interactions, such as strategic alliances and joint ventures (e.g., Belderbos & Jianglei, 2007; Chen & Chen, 1998; Sirmon & Lane, 2004). In fact, after a long period of research, this emphasis is now so entrenched that inter-firm business network research has been occasionally referred to as *the* network model (Axelsson & Easton, 1992; Johanson & Vahlne, 2003). However, this approach offers only limited guidance to firms whose network horizon involves the local market, presumably the majority of SMEs (Ellis, 2000). In contrast, important social

exchanges on the individual level have been widely ignored, and research examining the effect of inter-personal networks on internationalisation has emerged only recently (Ellis, 2011; Ellis & Pecotich, 2001; Harris & Wheeler, 2005; Loane & Bell, 2006; Zhou et al., 2007). This is particularly apparent in the context of SMEs, in which individual resources are crucial, and many decisions, including those related to internationalisation, often centre on one person and his or her knowledge, experience, and contacts (Holmlund & Kock, 1998).

Those studies that did address networks at the individual level have been undermined from at least one of the following limitations. *First*, most studies were limited mostly to exploratory and descriptive analysis (e.g., Andersen, 2006; Harris & Wheeler, 2005), and thus lacked theoretical foundation and academic insight. *Second*, as most authors tended to treat networks as uni-dimensional, they have overlooked specific attributes of individual network dimension (i.e., formal vs. informal), which made it difficult to reach satisfying conclusions (Inkpen & Tsang, 2005). Only limited research has devoted effort to examining how various types of networks may differ in affecting firms' internationalisation (Fernhaber & Li, 2012). *Third*, although the arguments in favour of networking seem compelling, little thought has been given to addressing potential negative effects associated with using networks (Ellis, 2011). *Fourth*, the majority of studies have only used cross-sectional data. This is a major limitation, considering that networks need time to develop (Havnes & Senneseth, 2001; Park & Ungson, 1997) and the conditions under which internationalisation occurs are uncertain and dynamic (Cuervo-Cazurra, Maloney, & Manrakhan, 2007). Longitudinal data can provide greater explanatory power to causal inferences, while holding other conditions constant (Wooldridge, 2002). *Fifth*, a number of studies have missed to include potentially confounding variables such as industry, age, resource endowment and ownership status of the firm (Watson, 2007). *Sixth*, most scholars have only examined small, newly formed, entrepreneurial businesses and did not consider more established SMEs (Ellis

& Pecotich, 2001). The reliance on networks is not limited to the start-up phase, as SME owners continue to rely on network partners (Hoang & Antoncic, 2003). Fernhaber and Li (2012) have shown that the effect of networks on internationalisation in new ventures differs from existing firms. One of the distinctions of this dissertation is to fill those research gaps.

Surprisingly, this discourse has not addressed the family firm sector, even though family firms represent a substantial portion of the economic landscape in most developed countries (Morck & Yeung, 2003; Schulze, Lubatkin, & Dino, 2002) and a growing number of researchers have taken interest in this type of business (Craig, Moores, Howorth, & Poutziouris, 2009; Craig & Salvato, 2012). Moores and Mula (2000) suggest that at least half of all Australian businesses are family controlled, the vast majority of which are SMEs. Family firms are significant contributors to the wealth of the Australian economy. Estimations suggest that they have a combined wealth of A\$4.3 trillion, which represents a greater value than the total of the Australian Security Exchange market capitalisation of all listed companies plus the total value of all managed funds in Australia (PricewaterhouseCoopers, 2007; Smyrnios & Dana, 2006).

Evidence suggests that the internationalisation behaviour of family-owned businesses distinguishes them from firms with structures other than family ownership (e.g., Bell, Crick, & Young, 2004; Fernandez & Nieto, 2006; George, Wiklund, & Zahra, 2005; Graves & Thomas, 2006; Johanson & Vahlne, 2009). Most studies acknowledge that intangible resources enhance the uniqueness of family firms (e.g., Habbershon & Williams, 1999; Sirmon & Hitt, 2003). For example, according to Hall (1992), networks are among the intangible resources that can generate a competitive advantage and thus make family firms unique. Existing studies neglected to examine the effect of being a family firm on the relationship between inter-personal networks and internationalisation, and this is a further distinction of this dissertation.

In addition, research shows that a firm's resource conditions affect its willingness and capability to form and exploit strategic alliances (Park, Chen, & Gallagher, 2002). Specifically, slack resources, defined as excess resources available to be used in a discretionary manner (Bourgeois, 1981), seem to determine firms' strategic alliance success (Marino, Lohrke, Hill, Weaver, & Tambunan, 2008). However, no scholar has extended this discussion to the manager's inter-personal networks with regard to SME internationalisation. This is surprising, since inter-personal networks may contribute to SME internationalisation, and the ability to exploit those networks is highly dependent on firms' internal capabilities (Håkansson & Ford, 2002). As a further distinction, this dissertation will address this research gap.

1.2 RESEARCH QUESTIONS AND METHODOLOGICAL RATIONALES

This dissertation addresses these research gaps by exploring the role of managers' inter-personal networks in the pursuit of SME internationalisation. Particularly, this dissertation will investigate the role of distinct network categories, in specific formal and informal networks. By also examining the role of family influence and organisational slack resources, this dissertation contributes to the discussion of how family firms differ in their internationalisation behaviour and how internal resource conditions intervene in this relationship. Building on the extant works framed within the network perspective (Johanson & Mattson, 1988) and social network theory (Mitchell, 1969; Rogers & Kincaid, 1969; Weimann, 1989) as a theoretical basis to build the arguments, this dissertation examines how these networks influence firms' internationalisation. Thereby, four empirical questions will be explored:

(RQ 1) How do SME managers' formal inter-personal networks affect SME internationalisation?

(RQ 2) How do SME managers' informal inter-personal networks affect SME internationalisation?

(RQ 3) How does being a family firm influence the relationship between formal/informal inter-personal networks and SME internationalisation?

(RQ 4) How do slack resources influence the relationship between formal/informal inter-personal networks and SME internationalisation?

These research questions are examined by using quantitative survey data. This study requires longitudinal data of a statistically representative sample of SMEs. The data employed in this research will be derived from the Business Longitudinal Survey (BLS) undertaken by the Australian Bureau of Statistics (ABS) on behalf of the federal government during the four financial years from 1994–1995 to 1997–1998 (inclusive). To answer the research questions, this dissertation uses a sample of 2344 Australian SMEs.

1.3 ANTICIPATED CONTRIBUTIONS

The research questions enable this dissertation to provide theoretical, managerial, and applied contributions. From a theoretical standpoint, this dissertation extends the literature on SME internationalisation by examining inter-personal networks as a complex maze of formal and informal ties.

First, this dissertation contributes to existing theory by addressing the previously mentioned limitations. This dissertation will explore the actual effect of those inter-personal networks on the internationalisation for established SMEs of all ages using a longitudinal and representative database. In the past, the importance of managers' inter-personal networks in

SME internationalisation has been something of a truism, verified only by anecdotal data with little empirical ‘hard data’ evidence (Andersen, 2006). Therefore, this research issue originates from the call of researchers to establish a link between inter-personal networks and their economic results (Boehe, 2012; Ellis, 2011) investigating both potential positive and negative impacts (Elango & Pattnaik, 2007; Musteen et al., 2010) by using large-scale longitudinal time-sensitive data (Ellis, 2011).

Second, by examining family influence, this dissertation extends research on the role of inter-personal networks in the internationalisation process to this important SME sub-sector. Several scholars have suggested that investigating the role of inter-personal networks in family firm internationalisation could enhance the knowledge of how and why family firms internationalise differently (Graves & Thomas, 2004; Kontinen & Ojala, 2010), and this research will extend that conversation.

Third, this dissertation contributes to the discussion of how firms translate organisational slack resources into higher international output. This extends current knowledge about slack resources to the relationship between inter-personal networks and internationalisation. This is important because existing work is limited by conceptual vagueness regarding resources that are rare and valuable to firm growth (Hoang & Antoncic, 2003).

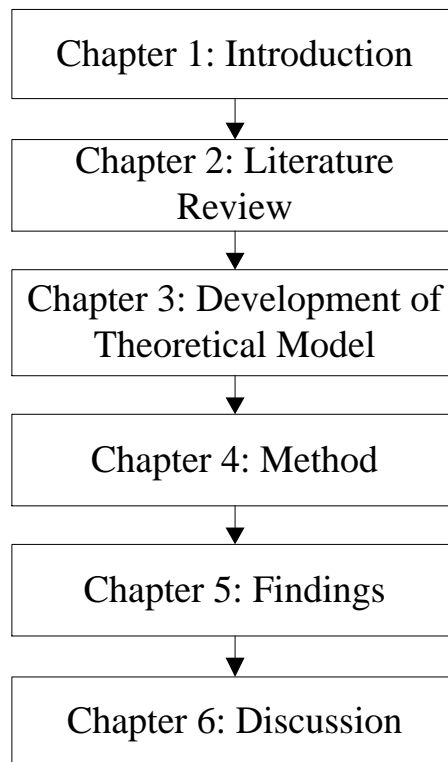
This dissertation presents important implications for managers wanting to expand their businesses across national borders. By highlighting the relevance of networks in SME internationalisation, this study conveys to SME managers the essential role of inter-personal networks in growth and international expansion, but it also highlights their pitfalls. For those involved in policy decisions and resource and programming allocations, this dissertation presents empirical evidence of the importance of inter-personal networks in SME internationalisation. SMEs in general and family firms in specific play a dominant role in all

economies, and exporting is often essential to such firms' strategies. Policy makers need to consider ways to facilitate their internationalisation. Interestingly, this resource for business growth has to date not been adequately understood by government export schemes (Mason & Brown, 2011).

1.4 ORGANISATION OF DISSERTATION

The rest of this dissertation can be seen in Figure 1 and is structured as follows: *Chapter 2* illustrates and defines the main concepts – internationalisation as well as inter-personal networks – and discusses the background of relevant literature. In specific, it starts with a reflection of the underlying theoretical basis of this study. Further, it contains a literature review of relevant areas of inter-personal network-based research in the internationalisation context, highlights the prevailing research gaps, and restates the research questions. In *chapter 3*, the theoretical model upon which the quantitative study rests is developed. It concludes with a set of hypotheses, which are tested in the following chapters. Therefore, *chapter 4* explains the methodological approach used in this study, i.e., data collection, sample selection, empirical measures of variables and statistical techniques used. *Chapter 5* presents the findings, including descriptive statistics and the results of the hypotheses testing in order to answer the research questions. These findings are discussed in *chapter 6*.

Figure 1: Organisation of dissertation



Chapter 2: Literature Review

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2.1 INTRODUCTION

The purpose of this chapter is to review the current international business literature, focussing on the embedded constructs in this study, specifically internationalisation and inter-personal networks. We highlight the gap in the literature and develop the research questions. First, in Section 2.2, we define internationalisation, the main concept of this study. After characterising several internationalisation approaches, we elaborate on social network theory, this study's main underlying theoretical base. Second, Section 2.3 defines the network term and specifies the construct we will focus on in this study. Then, section 2.4 extends this discussion by examining networks in the context of firm internationalisation. Here, we examine the benefits and constraints of the prior defined inter-personal network term and

conclude with research question 1 and research question 2. This is followed by a definition of family firms. Specifically, in order to demonstrate the uniqueness of family firms, we provide a brief discussion of their internationalisation behaviour, which leads to the introduction of research question 3. Finally, we introduce the concept of organisational slack resources, which leads to research question 4.

2.2 THEORETICAL BACKGROUND: PROCESS OF INTERNATIONALISATION

2.2.1 INTERNATIONALISATION

Internationalisation refers to the geographic expansion of economic activities across national borders (Ruzzier & Antoncic, 2007). Multiple approaches to examining internationalisation have been used in the extant literature and, as a result, a single, universally accepted definition of the term ‘internationalisation’ is not identifiable (Welch & Luostarinen, 1988; Whitelock & Munday, 1993; Young, 1987). This dissertation adopts the definition that internationalisation “is the discovery, enactment, evaluation, and exploitation of opportunities - across national borders - to create future goods and services” (Oviatt & McDougall, 2005a, p.540). In the international business context, an opportunity is an unfilled, or imperfectly filled, demand in a foreign market (Toyne, 1989). Thereby, the discovery or exploration is the seeking process of new opportunities, followed by the decision to exploit those opportunities (Choi & Shepherd, 2004). Initially grounded in the international entrepreneurship literature, this definition has been increasingly applied in network based internationalisation research (e.g., Ellis, 2011; Vasilchenko & Morrish, 2011). In view of this, Shane and Venkataraman (2000) identify the entrepreneurial activities of international opportunity exploration, evaluation and exploitation as a process of finding and negotiating

exchange agreements with new customers in foreign markets. Importantly, this entails that during the internationalisation process, relationships influence the firm's international growth and expansion to other countries (Coviello & McAuley, 1999). In the context of this definition, several theories can be identified to explain the internationalisation of firms.

2.2.2 ECONOMIC PERSPECTIVE OF INTERNATIONALISATION

Early theoretical discourse adopted an economic perspective, centring on the notion that the extent, form and pattern of firm internationalisation arises from considerations of transaction costs (Williamson, 1975) as well as monopolistic (Hymer, 1976) and internalisation advantages (Buckley & Casson, 1976). Drawing on these perspectives, the eclectic economic paradigm aims to explain different forms of market entry mode and target market selection (Dunning, 1977). According to Dunning (1988), the entry mode is determined by the realisation of three sets of advantages as perceived by firms. In brief, *ownership*-specific advantages consist of the knowledge, capabilities, processes or physical assets that allow the firm to compete efficiently in the global market. *Location*-specific advantages refer to the factors that exist in individual foreign countries from which firms can derive specific benefits. Finally, *internalisation* advantages refer to the benefits that the firm derives from internalising external foreign-based value chain activities in its internal value chain. The underlying assumption of the economic perspective is that internationalisation decisions are based on economic and rational risk – return considerations that lead to the most optimal result for the firm (Chandra, Styles, & Wilkinson, 2009).

While the economic approach has received great attention in past research, scholars criticise its static nature and little guidance for the dynamics of the internationalisation process (Dunning, 2001). Changes from one entry mode to another are not explained, nor

does the model capture the preceding process of international opportunity recognition (Andersen, 1997). In addition, this approach is more applicable to large multinational companies, as it focuses on Foreign Direct Investments (FDI) and later stages of the internationalisation process (Ruzzier, Hisrich, & Antoncic, 2006). SMEs, on the other hand, often face severe financing constraints and rarely progress towards FDI (De Maeseneire & Claeys, 2012). Thus, the economic approach offers only limited value for the theory of SME internationalisation.

2.2.3 STAGE MODEL OF INTERNATIONALISATION

Based on the behavioural theory of the firm (Aharoni, 1966; Cyert & March, 1963) and Penrose's (1959) theory of growth, the second perspective of research on internationalisation was developed in the 1970s and is commonly accredited to the Uppsala School of research (Johanson & Vahlne, 1977; Johanson & Weidersheim-Paul, 1975). This theory considers internationalisation a dynamic process in which the firm gradually increases its international involvement. When firms start to expand internationally, they prefer countries within a 'low psychic distance'. Psychic distance is determined by differences in external environmental factors such as language, culture and political systems (Dow & Karunaratna, 2006). At the same time, firms prefer entry modes that require only a low capital commitment, i.e. indirect exporting. With increasing international experience and knowledge, firms expand to markets with greater psychic distance and use more capital-intensive entry modes, such as foreign production.

The stage model is the most commonly used theory in SME internationalisation (Chandra et al., 2009; Coviello & McAuley, 1999). Nevertheless, criticism of various kinds increasingly appears. One criticism is that the model is only valid at the first stages of an

international expansion when lack of market knowledge and market resources is still a constraint (Forsgren, 1989). Therefore, the model may be restricted to the initial internationalisation phase (Johanson & Mattson, 1993). It has also been argued that the model is too deterministic (Reid, 1981) and limits firms' strategic choices, if they internationalise in accordance with the model (Andersson, 2000). Additionally, scholars have investigated many firms that omitted several internationalisation stages and were involved with unexpected speed in FDIs (e.g., Madsen & Servais, 1997; Welch & Luostarinen, 1988).

2.2.4 BORN-GLOBAL RESEARCH

The stream of research that has emerged in the past two decades and challenged the internationalisation pattern proposed by the stage model is commonly referred to as “born-global” (Madsen & Servais, 1997; Zhou et al., 2007) and “international new venture (INV)” (McDougall, Shane, & Oviatt, 1994; Oviatt & McDougall, 2005b) research. According to these scholars, firms do not follow the sequential steps, but rather are often international from their birth or within 5 years of establishment. Such internationalisation patterns are most prevalent among SMEs that target highly specialised niche markets and operate in small, open economies that face the double threat of limited industry and national customers (Bell, McNaughton, & Young, 2001). The revolutionary economic and technological changes taking place in many markets around the world, in conjunction with global-minded managers, propel these firms to operate internationally soon after their inception (Knight & Cavusgil, 1996; Rialp, Rialp, Urbano, & Vaillant, 2005).

“An internationally experienced person who can attract a moderate amount of capital can conduct business anywhere in the time it takes to press the buttons of a telephone, and, when required, he or she can travel virtually anywhere on the globe in no more than a day.” (Oviatt & McDougall, 2005b, p.29).

With such conditions, many new firms cannot escape the confrontation with international competitors and are forced to adopt a global mindset from the beginning (Drucker, 1991; Oviatt & McDougall, 2005b). As such, the stage model of internationalisation seems to be out-dated and incongruent with recent developments (Oviatt & McDougall, 2005b). Critics of the born-global research stream, however, blame its primarily empirical and descriptive nature and lack of well-developed theoretical foundation (Madsen & Servais, 1997; Sharma & Blomstermo, 2003). Rialp, Rialp, and Knight (2005), in their review of born-global studies, conclude that the empirical research is far ahead of its theoretical developments.

Born-Globals are new firms that possess only limited foreign market knowledge and, similarly to most SMEs, suffer from ‘liability of foreignness’ or ‘liability of newness’ when entering foreign markets (Hannan & Freeman, 1984). These terms translate into additional costs arising from unfamiliar cultural, political, and economic market conditions, and the need for geographic coordination across borders. These costs lead to lower profitability of foreign firms competing against local firms on their home ground (Zaheer, 1995). This concept has been used as the central assumption driving theories of multinational enterprise (Buckley & Casson, 1976; Dunning, 1977; Hennart, 1982), but is particularly acute in smaller firms that have fewer resources to overcome this burden. Zahra (2005) refers to this issue as the ‘liability of smallness’. To overcome the ‘liability of foreignness’ and the ‘liability of smallness’, and consequently, compete successfully against local firms, firms need to be

embedded in an empowering, and concurrently restraining web of business networks (Axelsson & Easton, 1992; Johanson & Mattson, 1988). As a result, Johanson and Vahlne (2009) have revised their initial model and acknowledged the importance of networks, as initiated by Johanson & Mattson, (1988). They recognize that ‘outsidership’, in relation to the pertinent network, rather than psychic distance, is the cause of uncertainty (Johanson & Vahlne, 2009).

2.2.5 NETWORK PERSPECTIVE OF INTERNATIONALISATION

According to the network perspective, internationalisation of the firm means to establish and develop positions in relation to counterparts in foreign networks. The crucial notion in the network perspective is that the individual firm depends on resources controlled by other firms. The firm accesses these external resources through its network positions. It can do so by developing a position in an existing network or by establishing new ties. Common interests in these networks encourage firms to develop and maintain contacts with one another, which lead to mutual benefits (Johanson & Mattson, 1988; Johanson & Vahlne, 2003). Thereby, the focus is on gradual learning and the acquisition of market knowledge through interaction within networks. In this process, firms internationalise through ongoing development of new relationships, increasing resource commitments, and collaboration across networks (Johanson & Mattson, 1988).

The traditional network model perceives firm internationalisation as a function of inter-firm relationships that span across borders (Axelsson & Easton, 1992; Johanson & Mattson, 1988). The network approach implies that firms will be restricted to those markets where they already have contacts to other firms (Johanson & Vahlne, 2006). The network approach on its own offers only limited explanatory value for those firms that do not possess

an extensive web of international business relationships, presumably most SMEs. It is therefore understandable that most research that applied the network approach could only explain the internationalisation of larger companies that benefited from their a priori, highly internationalised networks (Ellis, 2000). Thus, it is too restrictive to reduce the analysis of network effects to inter-firm ties, which are only a subgroup of all the ties held by managers (Ellis, 2011).

2.2.6 SOCIAL NETWORK THEORY

A focus on managers' inter-personal networks is less restrictive, as it allows for the communication of information about international opportunities via all forms of network contacts (Ellis, 2011). In contrast to multinational operating corporations, knowledge in smaller firms tends to be more individualised to the founder or management team (Oviatt & McDougall, 2005a). Thus, as long as the manager has some direct or indirect ties with potential exchange partners abroad, a purely domestic firm network does not hinder the exploration of foreign opportunities (Ellis, 2011). For this reason, social network theory recognises the structure of social interactions that influences the value of information. Hence, opportunities are created for some people and not for others.

The principal tenet of social network theory is that "any set of social relationships is embedded within a larger structural context that precludes or makes possible various kinds of social contacts" (Ibarra, 1995, p.675). The social network concept explains who interacts with whom and how many total connections exist in an individual's network. Thereby, the social network entails a set of individual nodes linked by a set of social relationships of a specific type (Laumann, Galaskiewicz, & Marsden, 1978). These relationships can represent any form of social behaviour, from cooperative and helpful to hostile and competitive (Krause, Croft,

& James, 2007). According to social network theory, networks that span disparate social groups affect performance-related firm outcomes (Burt, 1992). Thereby, information about new opportunities predominantly disseminates through bridges that link people in different social clusters (Granovetter, 1973; Rogers & Kincaid, 1969). Regarding international opportunities, those social clusters should be connected in some way to foreign markets (Ellis & Pecotich, 2001). For example, Burt's (1992) notion of 'structural holes' refers to the unique information benefits available to those that are connected by non-redundant network ties. A non-redundant network tie bridges a hole between individuals who possess complementary information or resources (Burt, 1992; Burt, 1997). From this perspective, it can be argued that the ability to identify and exploit international opportunities depends on the idiosyncratic benefits of each individual's inter-personal network (Ellis, 2000).

Social network theory has greatly assisted the understanding of human social organisations by building up social structures from individual-level interactions (Krause et al., 2007). It originated in the mathematical graph theory and, since then, has predominantly been applied in the social sciences and psychology (Scott, 2000). However, its approach goes well beyond these two disciplines, and has found widespread application in fields such as information technology (Madey, Freeh, & Tynan, 2002), communication systems (Tadić, 2001), and animal behaviour science (Croft et al., 2005). In the management discipline, interest in social network theory sparked in the 1990s and has increased since then (Bruton, Lohrke, & Lu, 2004).

"Network research is "hot" today, with the number of articles in the Web of Science on the topic of "social networks" nearly tripling in the past decade." (Borgatti, Mehra, Brass, & Labianca, 2009, p. 892)

In management research, social network theory has often been the centre of knowledge management studies, with the objective to help organisations better exploit the knowledge distributed across its members. While some studies have examined social network antecedents, the focus of research has concentrated on the consequences of social networks (Borgatti et al., 2009). While management scholars have widely adopted social network theory, this approach has received relatively little attention in the context of firm internationalisation (Bruton et al., 2004; Ellis, 2011). Among the few scholars who have utilised social network theory, Ellis (2000) was one of the first to show that information about foreign opportunities is usually acquired through inter-personal networks rather than systematic market research. Andersen (2006) further refined this finding and showed that the perceived value of information derived from social networks depends on the network properties, the SME manager's international experience, and the use of information technology. More recently, Zhou et al. (2007) examined the rapid internationalisation of 'born-globals', and Ellis (2011) examined the opportunities and constraints of inter-personal networks using social network theory.

In sum, the application of the social network lens in the international business field is a more current event whose promise lies in its potential to capture some of the complexities of organisations that elude other methods. Therefore, the central foundation of this dissertation is based on social network theory, which implies the transmission of knowledge or information through inter-personal ties and social contacts with individuals (Mitchell, 1969; Rogers & Kincaid, 1969; Weimann, 1989). In the following, we will illuminate the theoretical construct of the network term and analyse its components.

2.3 THEORETICAL CONSTRUCT: NETWORKS

The term ‘network’ refers to a range of phenomena (Hite & Hesterly, 2001; Jones, Hesterly, & Borgatti, 1997). In theory, any model of networking “should weave a seamless web in which the distinctions between individuals, organisations, and networks are blurred or even ignored” (Dubini & Aldrich, 1991, p.306). In practice, however, to structure our thinking, it is necessary to distinguish between certain network types (Dubini & Aldrich, 1991). In their review of the network-based literature, O’Donnell, Gilmore, Cummins, and Carson (2001) as well as Hoang and Antoncic (2003) conclude that, with regard to network content, networks fall into two principal categories: inter-firm networks and inter-personal networks. This study and social network theory solely reflect inter-personal networks. For the sake of making a clear distinction, however, we also briefly elaborate on inter-firm networks in the following section.

2.3.1 INTER-FIRM NETWORKS

Inter-firm networks are integrative forms of inter-organisational cooperation (Das & Teng, 1996; Golden & Dollinger, 1993). These networks exist through formally contracted, collaborative arrangements such as specialisation within a diligently chosen subset of value chain activities. These include, for example, logistics, contract manufacturing, or R&D activities (Belso-Martinez, 2006; Golden & Dollinger, 1993; Havnes & Senneseth, 2001; Westhead, Ucbasaran, & Binks, 2004). Inter-firm networks provide firms access to a variety of important resources and complementary skills, which leads to the building of specialised knowledge and achievement of economies of scale in operations and collaboration to acquire greater knowledge and capabilities (Chetty & Wilson, 2003). The most prolifically

researched form of inter-firm networks are joint ventures (Grandori & Soda, 1995), which involve two or more legally distinct organisations, each actively involved in decision-making processes of the cooperatively owned entity (Geringer, 1988). Notably, research employing the traditional network model of internationalisation has mostly concentrated on inter-firm interactions (Johanson & Mattson, 1988).

2.3.2 INTER-PERSONAL NETWORKS

Inter-personal networks, the focus of this study, consist of all those people with whom managers have direct relations. Typically, that group includes people from whom they obtain services, advice, and moral support (Dubini & Aldrich, 1991). These networks are significant because managers usually place great importance on meeting and communicating with people, leading to the notion that “business know-who” is as important as “business know-how” (Peterson & Rondstadt, 1986). However, prior research employs many different terms to describe the meaning of inter-personal networks, including social networks (Komulainen, Mainela, & Tahtinen, 2006; Zhou et al., 2007), personal connections (Andersen, 2006), informal networks (Coviello & Munro, 1997), and social ties (Ellis, 2011). Björkman and Kock (1995) propose that inter-personal networks are networks among individuals who are predominantly linked through social context-based interactions, but information and business exchanges can also occur through these networks. Consequently, these authors emphasise the broader notion of the inter-personal network construct, incorporating personal relationships with both business professionals and government officials, as well as with family and friends. This dissertation adopts Björkman and Kock’s (1995) definition of inter-personal networks.

Broadly, therefore, inter-personal networks can be distinguished from inter-firm networks by the level of analysis: an inter-personal network is the sum of relationships

linking one person with other people (Burt, 1992) whereas inter-firm networks are usually described as a set of relationships linking one firm with other firms (Johanson & Mattson, 1988). Having made this distinction, and being guided by Mitchell's (1969) suggestion that it is important to define the focus of analysis (i.e., at the level of personal or organisational relationships), this dissertation focuses exclusively on inter-personal networks for the following reasons: First, opportunity exploration is undertaken by individuals, not firms (Aldrich & Zimmer, 1986; Ozgen & Baron, 2007; Singh, 2000). Shane (2003) describes the exploration of opportunities as a cognitive and not a collective act. Consequently, the appropriate level for analysing the information exchange that leads to international opportunity exploration is the inter-personal, rather than the inter-firm network (Ellis, 2011). Second, most research on firm internationalisation has concentrated on networks that originate from inter-firm interactions (e.g., Axelsson & Easton, 1992; Mesquita & Lazzarini, 2008). In contrast, important social exchanges at the individual level have been widely ignored (Ellis & Pecotich, 2001; Harris & Wheeler, 2005; Loane & Bell, 2006; Zhou et al., 2007). Neergaard, Shaw and Carter (2005) argue that in order to acquire a more comprehensive understanding of inter-personal networks, it is appropriate to consider this network separately from other network contents. Third, as mentioned above, knowledge in SMEs is often embedded in one person and his or her social relationships with other individuals (Holmlund & Kock, 1998). Therefore, inter-personal network relationships are extremely important for SME managers to pursue an international expansion (Davidsson & Honig, 2003; Hoang & Antoncic, 2003).

Formal Inter-Personal Networks vs. Informal Inter-Personal Networks

Inter-personal networks can be further categorised into types derived from distinct sources: formal and informal (Birley, 1985; Coviello & Munro, 1995; Coviello & Munro, 1997; Ibarra, 1993; Johannisson, 1987). *Formal inter-personal networks* are “composed of a set of formally specified relationships [...] among representatives of functionally differentiated groups who must interact to accomplish an organizationally defined task” (Ibarra, 1993, p.58). Formal inter-personal networks consist of, for example, venture capitalists, accountants, creditors, banks, lawyers, consultants, and trade associations (Birley, 1985; Das & Teng, 1997). In their interaction with the manager, these network actors are usually not “in the business of diagnosing needs, but rather of satisfying them by responding to specific requests” (Birley, 1985, p.109).

Informal inter-personal networks, by contrast, “involve more discretionary patterns of interaction, where the content of relationships may be work related, social, or a combination of both.” (Ibarra, 1993, p.58). Informal inter-personal networks include, for example, contacts with other business actors (e.g., from other local businesses or the same industry), friends, and family members (Birley, 1985; Das & Teng, 1997). These network associates may have less information about the options and schemes open to the manager; however, they are generally more willing to listen and to give advice. Hence, there are different benefits and problems associated with each type of network. As an example, borrowing money from a friend or family member in order to finance an investment is considered informal networking, whereas seeking venture capital can be regarded as formal networking. The key distinction is that formal inter-personal networks are built on business, usually legally binding, contracts and arrangements wherein each party has clear rights and duties. Contrarily, informal inter-

personal networks are rooted in personal relationships and are essentially trust-based organising vehicles (Das & Teng, 1997).

Network Range and Network Strength

Two further essential characteristics of the structure of inter-personal networks are the range of the network and the strength of the network ties (Anderson, 2008; Cross & Cummings, 2004; Kreiser, 2011; Zhao & Aram, 1995). Network range refers to the number of unique network ties with whom a manager is directly connected (Collins & Clark, 2003; Reagans & McEvily, 2003). Networks that span multiple diverse actors usually allow access to various kinds of information. As a result, if managers have a wide network range, they can access larger overall pools of knowledge (Burt, 1992; Hansen, Podolny, & Pfeffer, 2001). According to Burt's (1992) notion of 'structural holes', the benefits of networks result from the diversity of information and hence networks with a larger range should be better suited to bridge structural holes.

The other key concept of the network structure is the tie strength of the network. Strong ties are those that are exercised frequently and are emotionally close, while weak ties are typically associated with lower levels of interaction and less dependence (Granovetter, 1973). Granovetter (1985) noted that information gained through strong ties is more trustworthy because it is richer, more detailed and accurate. However, those based on strong ties require more maintenance and lead to less diverse information than networks composed of weak ties (Powell & Smith-Doerr, 1994; Uzzi, 1996). This trend occurs because people with strong ties to each other are assumed to possess similar information and this, in turn, leads to more redundancy (Burt, 1992; Burt, 1997). Nevertheless, Reagans and McEvily (2003) indicate that network range may be more important than weak ties in providing access

to non-redundant information. Whereas weak ties only take into account the strength of the relationship, network range considers the extent to which a manager's collection of networks spans disparate bases of knowledge. Therefore, the main determinant for acquiring non-redundant information is the network range rather than the number of weak ties.

2.4 INTER-PERSONAL NETWORK - INTERNATIONALISATION RESEARCH

2.4.1 ROLE OF INTER-PERSONAL NETWORKS FOR FIRM INTERNATIONALISATION

According to social network theory, which considers the transmission of information through inter-personal networks, networks possess the role of 'infomediaries' that facilitate the exchange of valuable information (Zhou et al., 2007). Multiple lines of empirical research confirm the important and varied role that inter-personal networks play for firm internationalisation. These perspectives have been categorised as having both positive and negative roles, which are now detailed.

Positive Role

STIMULATE AWARENESS OF INTERNATIONAL OPPORTUNITIES

Inter-personal networks can potentially stimulate the awareness of foreign market opportunities (Chandra et al., 2009; Ellis, 2000). International opportunity recognition triggers the internationalisation process and is its critical antecedent (Oviatt & McDougall, 2005b). The recognition of opportunities depends on asymmetrical information between individuals and the owners of resources (Shane & Venkataraman, 2000). Because of their

limited resources and their liability of smallness, SMEs often lack access to information that is available to larger companies (Pangarkar, 2008). This is even more pronounced in conjunction with the liability of foreignness, where geographic, cultural and other forms of distance hinder information flow in the international context (Ghemawat, 2001). Consistent with social network theory, awareness of foreign entrepreneurial opportunities depends on the specific information benefits of an individual's personal network (Ellis, 2000). This category of network provides the decision maker with information that systematic market searches often miss. Thereby, inter-personal networks extend the reach of the decision maker and provide means of access to novel and diverse types of knowledge and ideas than would otherwise be encountered (Sharma, Young, & Wilkinson, 2006).

TRIGGER INITIAL INTERNATIONALISATION

Inter-personal networks trigger and motivate firms' initial internationalisation intention (Coviello & Munro, 1995; Ellis & Pecotich, 2001; Zain & Ng, 2006). Although knowledge of foreign opportunities is a critical antecedent of internationalisation, it is not a sufficient condition (Liang & Parkhe, 1997; Reid, 1983). Assuming that the capability of internationalisation is given, its initiation requires both a motive and an awareness of a commercially viable opportunity. Ellis and Pecotich (2001) suggest that the initiation of exports is determined by four possible scenarios – (1) seller-initiated (exporter's initiative), (2) buyer-initiated (unsolicited order), (3) broker-initiated (e.g., trade association), or (4) initiated as a result of a trade exhibition. In their study, they observed that the initiator, in most cases, was external to the firm and the export order was mostly unsolicited. Hence, the perception of foreign opportunities and consequently the export initiation itself is highly influenced by the managers' inter-personal networks (Ellis & Pecotich, 2001). Coviello and

Munro's (1995) case study approach yielded similar results. They found that firms' international expansions were triggered by opportunities that arose from network partners.

IDENTIFY FOREIGN EXCHANGE PARTNERS

Inter-personal networks are also beneficial for screening and evaluating potential exchange partners (Ellis, 2000). When faced with uncertainty in entering foreign markets, social engagement is indispensable to ascertain trustworthiness well in advance of starting commercial transactions (Al-Laham & Souitaris, 2008; Björkman & Kock, 1995; Ellis & Pecotich, 2001). Personal contacts are often based on shared past experiences and mutual trust (McGrath, Vance, & Gray, 2003) and hence serve as an important source of referral for the endorsement of a manager's personal integrity (Burt, 1997; Stuart, Hoang, & Hybels, 1999). Such referral trust often occurs because the strong social norms and beliefs embedded in inter-personal networks, encourage obedience to ethical business practices, and thereby decrease the necessity for formal controls (Adler & Kwon, 2002). SME managers use personal contacts because they associate those ties with greater honesty (Musteen et al., 2010). These network partners can autonomously impart criticism and serve as an informal protection against potential opportunistic behaviour (Manolova et al., 2010). On the contrary, opportunities identified through other than network contacts are impersonal, and must be judged without a second opinion (Ellis, 2011).

PROMOTE INITIAL CREDIBILITY AND LEGITIMACY

Inter-personal networks promote initial credibility and legitimacy of firms and their managers in foreign markets (Coviello & Munro, 1995; Loane & Bell, 2006; Oviatt & McDougall, 2005a). In order to be successful, firms need to achieve legitimacy in their markets (Bianchi & Ostale, 2006). SMEs often suffer from a deficit of credibility and legitimacy concerning the quality of their products and services, which has been characterised as a lack of reputational capital (Aldrich & Fiol, 1994; Stuart et al., 1999). This is even more prominent when firms move into foreign markets where they must compete with established local firms or multinational players in an unknown institutional environment (Calhoun, 2002; Lee, Kelley, Lee, & Lee, 2012; Zaheer, 2002). Acquiring reputation is an effective means of gaining legitimacy and reduces the perceived risk of third parties in the new market (Gulati & Higgins, 2003; Roberts & Dowling, 2002). Reputation can be achieved through relationships with individuals who are associated with high external recognition (Hoang & Antoncic, 2003; Zhao & Aram, 1995). For example, connections with well-regarded industry players can act as a ‘quality’ signal for the firm’s new activities and products (Powell & Smith-Doerr, 1994; Stuart et al., 1999). Hence, favourable perceptions based on a firm’s or individual’s network links can result in succeeding beneficial business transactions (Hoang & Antoncic, 2003).

PROVIDE ACCESS TO LOCAL MARKET KNOWLEDGE

Inter-personal networks assist firms to access supplementary relationships and established channels of local market knowledge and to familiarise with local peculiarities (Haahti, Madupu, Yavas, & Babakus, 2005; Zain & Ng, 2006). Knowledge is one of the most

treasured organisational assets and source of long-lasting competitive advantages (Drucker, 1993; Grant, 1996). Its acquisition indispensable for firms' internationalisation, in particular for resource-constrained SMEs (Liesch & Knight, 1999). A lack of local market knowledge causes problems, as it is problematic for firms to obtain an adequate understanding of, for example, laws, norms and business practices that apply in foreign markets (Eriksson, Johanson, Majkgard, & Sharma, 1997). Individuals can obtain foreign market knowledge through relationships with others who have this knowledge (Chetty & Blankenburg Holm, 2000; Zhao & Aram, 1995), or if not, refer them to a third party with the necessary knowledge (Zain & Ng, 2006). Thereby, inter-personal networks are highly viable channels, in particular for transmitting tacit knowledge. Tacit knowledge is personal, hard to formalise and deeply rooted in individuals' actions and experiences (Lam, 2000; Nonaka & Takeuchi, 1995). For example, by accessing diverse external knowledge sources, managers obtain important information about the prevailing forms of rivalry and market needs (Van den Bosch, Volberda, & de Boer, 1999). Through inter-personal networks, firms learn about how to do business in foreign markets and receive valuable tacit knowledge that cannot be acquired through systematic, or more formalised, market research (Eriksson & Chetty, 2003; Haahti et al., 2005).

STIMULATE FIRM INNOVATION

Inter-personal networks help to stimulate firm innovation processes (Cooke & Wills, 1999; Tsai, 2000). Recent international business literature has examined young small firms that, despite their scarce resources, achieve considerable foreign market success early in their life stage (e.g., Knight & Cavusgil, 2004; Oviatt & McDougall, 2005b; Zhou et al., 2007). Their ability to be successful abroad is a function of internal firm capabilities, in particular

innovation processes (Autio, Sapienza, & Almeida, 2000; Zahra, Ireland, & Hitt, 2000). Internationalisation has been considered an innovative act (Andersen, 1993; Casson, 2000; Saimee, Walters, & DuBois, 1993) and those young small firms are typically exceptionally innovative in this regard (Knight & Cavusgil, 2004). Thereby, inter-personal networks play an important role in innovation processes (Frost & Egri, 1991; Kanter, 1983) because knowledge needed for innovation comes from multiple individual sources (Nelson & Winter, 1982). Those individuals with more contacts outside the organisation import essential, novel knowledge leading to innovation (Allen, 1977). Obstfeld (2005, p.101) describes organisational innovation as a “process of creating new social connections between people, and the ideas and resources they carry, so as to produce novel combinations”. Thus, inter-personal network activity can be seen as an important predictor of managers’ involvement in innovation and, consequently, firm internationalisation.

Negative Role

Although inter-personal networks can facilitate firms’ internationalisation, several studies argue that they also have a downside, pertaining to restricted strategic options, time expended, and costs involved that can sometimes outweigh its benefits (e.g., Coviello & Munro, 1995; Ellis, 2011; Mort & Weerawardena, 2006).

RESTRICT STRATEGIC OPTIONS

Involvement in inter-personal networks may restrict strategic options, as the boundaries of a network may outline opportunity limits. This limitation occurs when a firm fails to broaden its network horizon with prospective partners or to identify potential business

opportunities beyond the pre-defined network boundary (Adler & Kwon, 2002; Gadde, Huemer, & Håkansson, 2003; Gulati, Nohria, & Zaheer, 2000). If the existing network partners have become the main source of market knowledge and relationships are institutionalised over time, the depth and breadth of information that reaches the firm is constraint (Ford, 1990). The boundaries of networks create opportunity costs, and the relationships built over time become self-reinforcing, leading to a path dependency. Caught in such a situation, firms can only acquire information allowed by the network ties (Hitt, Lee, & Yucel, 2002). This can constrain the development of new products and market diversification activities due to the firm's network bond and high dependency (Zain & Ng, 2006). Portes and Sensenbrenner (1993) suggest that the benefits generated from contacts also create obligations to the network. In turn, such obligations can create tension and hinder the firm from leaving the network, which can make it more difficult to pursue new opportunities (Håkansson & Snehota, 1995). Mort and Weerawardena (2006) called this phenomenon "network rigidity", while other scholars (e.g., Lin & Chaney, 2007; Tang, 2009; Welch & Welch, 1996) named it "lock-in effect" or "overembeddedness" (Gulati & Gargiulo, 1999; Nahapiet & Ghoshal, 1998; Uzzi, 1997).

TIME CONSUMING

Another negative effect of inter-personal networks is the required amount of time and resources that individuals need to devote in order to develop and maintain relationships. Before firms and their managers can profit from network ties, they need to invest extensive time and energy to establish and maintain these relationships (Jack, 2005; Jack, Dodd, & Anderson, 2008). As a result, they have less time to focus on the other challenges of internationalisation, e.g., mastering the loss of a national advantage and/or the lack of

complementary resources (Cuervo-Cazurra et al., 2007). Accordingly, the time managers spend on maintaining each network relationship determines the opportunity cost of time arising from the network. Thereby, the costs increase with the size of the network and time spent on each network relationship (Semrau & Werner, 2012). Those opportunity costs turn network relationship management into an investment, and, as with any investment, it may not be cost-efficient in every situation (Adler & Kwon, 2002). Consequently, such investments may become a resource burden for SMEs (Tang, 2011).

KNOWLEDGE SHARING RISKS

Networks can increase firms' costs through knowledge-sharing risks, as there is potential for partners to behave opportunistically and pursue their own interests (Aljafari & Sarnikar, 2010). Although such risk is probably more prominent in inter-organisational networks where sharing of sensitive information is often obligatory in order to combine certain value chain activities (Geringer & Hebert, 1989; Golden & Dollinger, 1993), it can also appear in inter-personal networks. For example, Brass, Butterfield and Skaggs (1998) demonstrated how inter-personal networks can promote unethical behaviour and conspiracies. The solidarity amongst certain members can divide the broader aggregate of network relationships into warring sub-groups (Foley & Edwards, 1996). By bringing together unsatisfied actors, collective activities can deepen social cleavages (Portes, 1998). Tacit knowledge, discussed earlier as an advantage of inter-personal networks, can also have a downside. For instance, if promising market opportunities are discussed with other industry players, they may exploit that information for their own benefit. As such, information communicated through inter-personal networks may trigger opportunistic behaviour from other network actors (Gulati et al., 2000).

2.4.2 INTER-PERSONAL NETWORK EFFECTS ON FIRM INTERNATIONALISATION

As described above, several studies have substantially examined the role of inter-personal networks. Empirical research on this topic has mainly concentrated on case-study designs and suggests that inter-personal networks yield both benefits and constraints. Yet to date, few large-scale studies have established an economic link between inter-personal networks and the actual internationalisation outcome (Boehe, 2012; Ellis, 2011). The small number of studies that do exist in the field have mostly shown a positive effect of inter-personal networks on firm internationalisation (Belso-Martinez, 2006; Chen & Chen, 1998; Elango & Pattnaik, 2007; Fernhaber & Li, 2012; Manolova et al., 2010; Zhou et al., 2007), while other results indicated no effect at all (Belso-Martinez, 2006; Boehe, 2012). The extant literature has typically considered the benefits provided by inter-personal networks (Elango & Pattnaik, 2007; Ellis, 2011; Mort & Weerawedena, 2006). However, inter-personal networks do not always lead to positive outcomes in regards to internationalisation; they can introduce perturbing information and thereby increase uncertainty and perceived risk perception. They can increase knowledge-sharing risk and restrict firms in their strategic growth aspirations (Welch & Welch, 1996).

So far, little is known about how and under what conditions negative effects will arise (Andersen, 2006). Only one recent study of Ellis (2011) shows that inter-personal networks do also inhibit international exchange. The problems of finding any significant results might stem from the content reduction of the network dimension. As most authors tend to treat networks as something uni-dimensional, they might overlook specific attributes of different network types. Inkpen and Tsang (2005, p.161) encourage scholars to move beyond ‘one-size-fits-all analyses of networks’. For example, although prior research on inter-personal networks has acknowledged the differential benefits and costs of formal versus informal

inter-personal networks (Birley, 1985), the implications of inter-personal network formality for internationalisation have not yet been explored (Fernhaber & Li, 2012). This is surprising, since it is known that learning from networks largely depends upon the formal versus informal mechanism within the network (Almeida, Dokko, & Rosenkopf, 2003; Anand, Glick, & Manz, 2002).

Consequently, a large number of scholars call for more evidence on how specific network types influence internationalisation output (Ellis & Pecotich, 2001; Harris & Wheeler, 2005; Ruzzier & Antoncic, 2007; Zhou et al., 2007). Therefore, and following this logic, we restate the following research questions:

Research Question 1: How do SME managers' *formal inter-personal networks* affect SME internationalisation?

Research Question 2: How do SME managers' *informal inter-personal networks* affect SME internationalisation?

The confounding results of prior studies exist because different forms of inter-personal networks (i.e., formal, informal) impact internationalisation in an opposite manner. They behave in this way because knowledge flows are affected by the quality and types of connections within networks (McDermott & Corredoira, 2010). In order to address this research question, several hypotheses are developed, which are tested based on large-scale longitudinal data in this dissertation. By using longitudinal data that stretches over several years, this dissertation responds to the call for studies to disentangle the complex network relationships by utilising time-sensitive data (Coviello, 2006; Manolova et al., 2010; Vasilchenko & Morrish, 2011).

2.4.3 VARIABLES MODERATING INTER-PERSONAL NETWORK EFFECTS ON FIRM INTERNATIONALISATION

Family Firm

Researchers have not addressed this discourse in the family firm sector. This is surprising since family firms play an important role in most economies. For example, Astrachan and Shanker (2003) stated that, dependent on the definition, family firms employ between 27% and 62% of the US workforce. Handler (1989) points out that defining a family firm is the first and most important challenge for family firm scholars. Litz (1995) identified two main approaches to defining family firms: a structure-based approach and an intention-based approach. The first approach focuses on the structural dimensions of the organisation, using the core constructs of ownership and management (Berle & Means, 1932). As such, family firms are defined as those, which are either owned, controlled and/or managed by a family unit. The second approach focuses on intra-organisational aspirations. It considers the preferences of an organisation's members toward intra-organisational family-based relatedness (Litz, 1995).

In the literature of family firm internationalisation, most articles defined family firms through the combination of ownership and management (Kontinen & Ojala, 2010). These studies follow Gallo and Sveen's (1991, p.182) seminal paper, in which a family firm is "a firm where the family owns the majority of stock and exercises full management control." However, while the presence of these components may be necessary, they are not sufficient. Chua, Chrisman and Sharma (1999) suggest that a business is a family firm, because it behaves as one and that this behaviour is distinct from that of a non-family firm. Accordingly, if a family firm is a matter of behaviour of the people, they can only behave as a family firm, if the people consider their company as a family firm (Chua et al., 1999).

Consequently, this dissertation employs a multi-dimensional approach, which defines family firms as organisations that are majority family owned, have at minimum one family member in the management or board of directors (e.g., Abdellatif, Amann, & Jaussaud, 2010; Fernandez & Nieto, 2006; Sciascia, Mazzola, Astrachan, & Pieper, 2012) and perceive themselves as family firms (Barbera & Moores, 2011; Okoroafo, 1999). This definition incorporates the structural dimensions using the core constructs of ownership and management (Berle & Means, 1932) and the behavioural dimension as suggested by Chua et al. (1999).

Research indicates that the internationalisation of family firms differs from that of non-family-firms (e.g., Fernandez & Nieto, 2006; Gomez-Mejia, Makri, & Kintana, 2010; Sciascia et al., 2012). Family firm status can confer specific competitive strategic advantages (Habbershon & Williams, 1999), including flexibility and speed in decision making, a strong, supportive family culture, and a long-term orientation (Fernandez & Nieto, 2006; Poza, 2007; Zahra, 2003), all of which can assist internationalisation considerations. However, as a result of the desire to pass on the business to following generations (Lumpkin & Brigham, 2011), family firms encounter unique obstacles in building managerial capabilities and financing growth (Blanco-Mazagatos, de Quevedo-Puente, & Castrillo, 2007; Schulze, Lubatkin, Dino, & Buchholtz, 2001) that can also restrict their internationalisation efforts. For example, family firms have low levels of qualified staff (Gallo & Pont, 1996), often lack knowledge in the international market space (Okoroafo, 1999) and prefer to self-finance growth with less access to external capital (Schulze, Lubatkin, & Dino, 2003).

Most studies acknowledge that intangible resources enhance the uniqueness of family firms (e.g., Habbershon & Williams, 1999; Sirmon & Hitt, 2003). Networks are among the intangible resources that can generate a competitive advantage and thus make family firms unique (Hall, 1992; Huybrechts, Voordeckers, Lybaert, & Vandemaele, 2011). No study to

date has examined the effect of being a family firm on the inter-personal network (i.e., formal and informal) – internationalisation relationship. For this reason, and to address this oversight, we restate the following research question:

Research Question 3: How does being a family firm influence the relationship between formal/informal inter-personal networks and SME internationalisation?

This dissertation argues that family firms' distinct characteristics influence the effectiveness and potential threat of managers' inter-personal networks on SME internationalisation. The specific hypotheses are developed and tested in the following chapters of this dissertation.

Organisational Slack Resources

Finally, this dissertation examines the moderating effect of organisational slack resources on the relationship between inter-personal networks and firm internationalisation. Organisational slack is defined as “[The] disparity between the resources available to the organization and the payments required to maintain the coalition” (Cyert & March, 1963, p.36). Firms develop organisational slack when they accumulate resources in excess of resource demands from their current business activity (Bourgeois, 1981; Cheng & Kessner, 1997).

In subsequent studies, this general construct has been conceptually refined into three different types of slack resources: available, potential, and recoverable (Bourgeois & Singh, 1983; Sharfman, Wolf, Chase, & Tansik, 1988). *Available slack* entails resources that are not yet committed to specific expenditures (e.g., excess liquidity) (Cheng & Kessner, 1997).

Available slack is a variable that is commonly represented by the firm's current ratio (i.e., current assets divided by current liabilities) (Daniel, Lohrke, Fornaciari, & Turner Jr, 2004). Thus, excess liquidity leads to more available slack and more financial resources that are available for future expansion strategies. *Potential slack* entails future resources that can be generated by, for example, raising additional debt or equity capital (Cheng & Kessner, 1997). Potential slack is usually represented by the firm's leverage ratio (i.e., debt-to-equity ratio), which reflects a lack of potential slack. This ratio indicates the firm's unused borrowing capacity. A firm with a high debt-to-equity ratio has relatively restricted potential to obtain additional funds or reallocate resources for future growth strategies (Bromiley, 1991). Lastly, *recoverable slack* comprises resources that have been absorbed into the system operation as excess costs (Cheng & Kessner, 1997). Recoverable slack captures the extent to which resources are embedded in the firm as additional costs, but could be recovered in case the firm faces financial difficulty (Bourgeois & Singh, 1983). A common proxy for recoverable slack is the proportion of R&D expenditures or administrative expenses to total sales (e.g., Bromiley, 1991; Steensma & Corley, 2000).

Since Penrose's (1959) seminal theory of growth, understanding the role of organisational slack resources has been played a major role in investigating firms' growth strategies. In the Resource-Based View, Barney (1991) argues that firms derive a sustained competitive advantage based on resources that are valuable, rare, imperfectly imitable, and not substitutable. The greater those resource endowments are the more likely is the firm to achieve high growth rates (Chandler & Hanks, 1994). Given that inter-personal network relationships are an exchange arrangement, the resource condition of the firm should play a significant part in the outcome of such arrangements (Park et al., 2002). Organisational slack creates opportunities for firm growth and it is the management's role to utilise those resources for expansion (Bradley, Wiklund, & Shepherd, 2011). Firms without slack are more

likely to stagnation and, in the worst case, firm failure (Brüderl & Preisendörfer, 1998; Taylor, 2001). The above-mentioned theories, however, do not discriminate between resources that are committed in current operations and resources that excess resources. Growth is a dynamic process and slack is continuously absorbed and released during this process (Bradley et al., 2011). Slack symbolizes a more dynamic conception than resource position and this study suggests both positive and negative effects of slack on firm growth.

Internationalisation, the exploration and exploitation of foreign opportunities, is a strategy of growth with the ultimate goal of improving a firm's performance. Resulting from the firms' liability of foreignness, SMEs require additional resources to exploit foreign opportunities. Slack is a resource cushion through which firms can discretionarily exploit those opportunities (Bourgeois, 1981; Weinzimmer, 2000). As described above, SME managers utilise different forms of inter-personal networks to enter new markets. Park, Chen and Gallagher (2002) have demonstrated that a firm's capacity to exploit alliances and networks as a strategic response to changing market conditions is contingent on its internal resource conditions. Firms have different levels of resources endowments, and those differences moderate how its managers respond to external stimuli (Chattopadhyay, Glick, & Huber, 2001; Madhavan, Koka, & Prescott, 1998).

As a result, the theoretical discussion on the impact of inter-personal networks on SME internationalisation must incorporate resource conditions as an intervening factor in this relationship. In doing so, this research follows the call to examine how firms translate slack resources into higher performance (Daniel et al., 2004) by evaluating the outcome of their networks (Marino et al., 2008). We restate the following research question:

Research Question 4: How do slack resources influence the relationship between formal/informal inter-personal networks and SME internationalisation?

This dissertation argues that the effectiveness of SME managers' use of inter-personal networks as a mechanism to enter foreign markets is contingent on the firm's internal resource conditions. The specific hypotheses are developed and tested in the following chapters of this dissertation.

2.5 SUMMARY

In this chapter, we presented a review of the literature related to the main constructs of this study. The first purpose was to provide the theoretical foundation of this study. We presented the main internationalisation theories and demonstrated how this study is predominantly based on social network theory. The second purpose was to define the network construct and to highlight the role of inter-personal networks in firm internationalisation. We further introduced family firms and organisational slack resources as moderating variables in the inter-personal network – internationalisation construct. Table 1 summarises this dissertation's research questions. In the next chapter, we develop a theoretical model and specify hypotheses to answer these research questions. Chapter 4 discusses the study's methodological approach, while chapter 5 highlights the statistical results.

Table 1: Summary of research questions

Research Question
<i>Research Question 1:</i> How do SME managers' formal inter-personal networks affect SME internationalisation?
<i>Research Question 2:</i> How do SME managers' informal inter-personal networks affect SME internationalisation?
<i>Research Question 3:</i> How does being a family firm influence the relationship between formal/informal inter-personal networks and SME internationalisation?
<i>Research Question 4:</i> How do slack resources influence the relationship between formal/informal inter-personal networks and SME internationalisation?

Chapter 3: Development of Theoretical Model

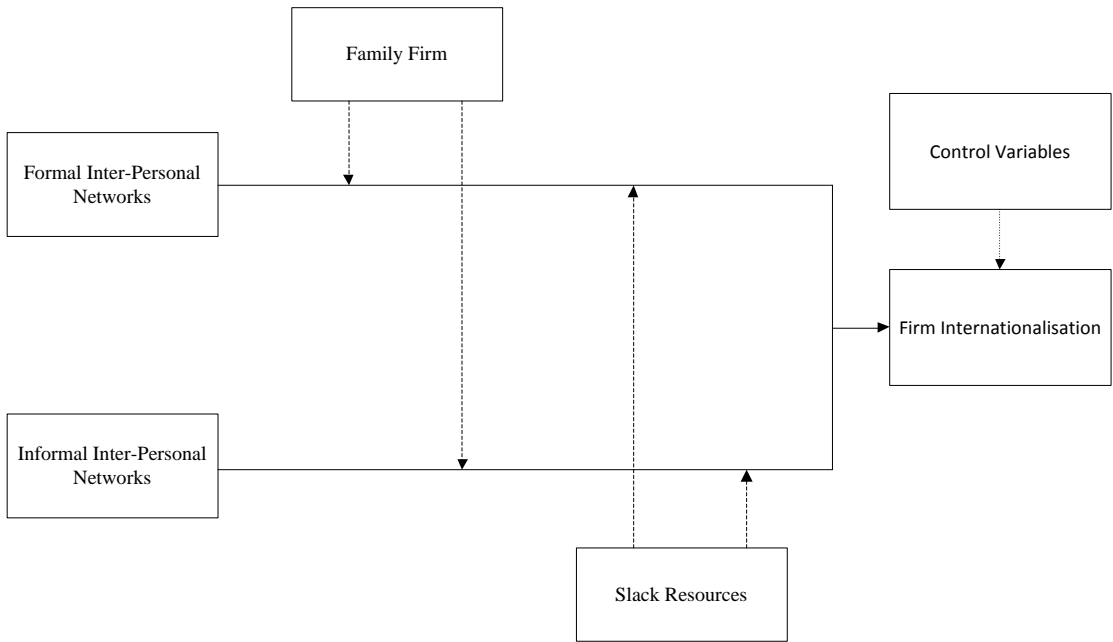
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3.1 INTRODUCTION

This chapter presents the theoretical model of this dissertation and specifies several testable hypotheses in order to answer the previously developed research questions. Despite the rising interest in network – internationalisation studies, the implications of inter-personal network formality for internationalisation have not yet been explored (Fernhaber & Li, 2012). In addition, the role of family influence and slack resources has been ignored completely (Eberhard & Craig, 2012; Marino et al., 2008). In this study, we develop a conceptual framework to investigate these relationships. In section 3.2, we hypothesise about the effect of SME managers’ inter-

personal networks (i.e., formal, informal) on SME internationalisation. Section 3.3 presents hypotheses about the influence of the SME of being a family firm on the previously developed relationships. In Section 3.4, we theorise about the moderating impact of slack resources on the inter-personal networks – SME internationalisation link. Figure 2 presents the conceptual framework of the above description.

Figure 2: The basic conceptual framework



3.2 EFFECT OF INTER-PERSONAL NETWORKS ON SME INTERNATIONALISATION

In the following section, we develop testable hypotheses about the main effect of SME managers' inter-personal networks on SME internationalisation. As outlined earlier, inter-personal networks are expected to provide certain benefits for firms' internationalisation. Consequently, managers who possess larger networks have access to more resources than managers with fewer contacts (Adler & Kwon, 2002). However,

the effect of networks is not only determined by the mere number of contacts, but potentially to a larger extent, by the structure and content of these networks (Gronum, Verreyne, & Kastle, 2012; Musteen et al., 2010). We argue that the confounding effects derived from inter-personal networks on SME internationalisation are determined by the means with which they are acquired, i.e. a formal versus informal setting. Accordingly, we distinguish inter-personal networks based on their formality. Given that both formal and informal inter-personal networks attract SME managers' attention, albeit in different ways, it is reasoned that only their joint investigation can detangle their effect on firms' internationalisation (Fernhaber & Li, 2012).

3.2.1 FORMAL INTER-PERSONAL NETWORKS AND SME INTERNATIONALISATION

Moving into foreign markets often requires substantial uncodified knowledge in areas that are relatively unfamiliar to SME managers. It is through personal networks between individuals that this tacit knowledge is gained and effectively transferred (Becerra et al., 2008). However, the transfer of tacit knowledge depends largely on having the right person with the right connection at the right place. This obstacle ultimately limits the number of people who can facilitate the knowledge transfer. When knowledge is difficult to codify, not many are willing and even fewer are able to transfer it (Reagans & McEvily, 2003). For this reason, SME managers who need to import tacit knowledge can hire or rely on experts (e.g., consultants, banks, industry associations) to provide the necessary expertise (Anand et al., 2002). For example, Ernst and Kim (2002) have shown that internationalising firms invite engineers and managers of their local suppliers in order to observe 'best-practice' methods and thus acquire tacit knowledge. As outlined in chapter 2, formal inter-personal networks are built on

business, usually legally binding, contracts and arrangements with clear rights and duties for each involved party (Das & Teng, 1997). The transfer of tacit knowledge should be easier between such formal network partners because the willingness to assist is facilitated by the legally binding structure between the network partners. This is supported by Anand et al. (2002) who stated that explicit information, such as market size or foreign regulations, can come through informal networks. Tacit knowledge, on the other hand, is best learned through formalised networks.

Minimising redundancy between partners is another essential characteristic of building efficient, information-rich networks that lead to positive outcomes (Burt, 1992). According to Burt's (1992) notion of 'structural holes', benefits of personal networks arise from the diversity of knowledge and the brokerage opportunities enabled by the non-existent connection between separate network actors. More diversity between unconnected groups leads to less redundancy, a higher quality of information, and earlier access to new information (Burt, 1998). Formal inter-personal networks serve as a reliable source of information and are often non-redundant, indicating that people on either side of the structural hole have access to dissimilar flows of information (Hargadon & Sutton, 1997; Larson, 1991). Therefore, managers perceive the information from formal network partners as relevant and useful for the firms' survival and growth (Fernhaber & Li, 2012). In contrast, very cohesive (e.g., family and friends) or structurally equivalent networks (e.g., similar size and age; firms in the same industry), add little new information to what an individual already knows (Burt, 2001; Sparrowe & Liden, 1997). The relative lack of redundancy in formal network settings implies that the SME manager has a richer and more varied set of assets and information (Gnyawali & Madhavan, 2001). As a result, in formal inter-personal relationships, the potential for recognising international opportunities is much higher

than in informal relationships (Burt, 2004; Kontinen & Ojala, 2011a). Thus, we test the following hypothesis:

Hypothesis 1. SME managers' formal inter-personal networking is positively related to SME internationalisation.

3.2.2 INFORMAL INTER-PERSONAL NETWORKS AND SME INTERNATIONALISATION

Thus far, this discussion has illustrated the positive effect of managers' inter-personal networks on SME internationalisation. However, while a large body of research has focused on the upside of networks, little is known about the trade-offs that managers make when they rely on their networks (Adler & Kwon, 2002; Brass, Galaskiewicz, Greve, & Tsai, 2004; Ellis, 2011). By distinguishing inter-personal networks based on their formality, this study intends to identify the effects on SME internationalisation more precisely and distil the negative impact of informal inter-personal networks.

To recall, formal inter-personal networks are built on legally binding contracts. In contrast, informal inter-personal networks are rooted in personal relationships and are essentially trust-based organising vehicles (Das & Teng, 1997). Trust is a complex concept that has different forms and appears in diverse contexts (Kramer, 1999; Nooteboom, 2002; Tsai & Ghoshal, 1998). Important for the existence and functioning of informal inter-personal networks is relational trust. "Relational trust [...] is based on the social interactions that take place between two or more individuals. [...] (it is) grounded in the social interactions that occur within groups and networks." (Zahra, Yavuz, & Ucbasaran, 2006, p.545). Bound by mutual relational trust, members of

informal inter-personal networks exchange ideas, share information, and communicate in other social ways. We argue that the sole reliance on trust as a bonding factor, as in the case of informal networks, will lead to the dominance of negative factors of inter-personal networks, as described earlier, and hence outweigh network benefits for several reasons.

First, the threat of restricted strategic options will be more prominent in managers' informal inter-personal networks. As observed by Uzzi (1997), networks that are characterised by high degrees of trust will isolate a firm from information that exists beyond its network. The strong solidarity amongst network members can 'overembed' the actors, leading to a reduced flow of new ideas into the group, and, ultimately, to insularity and inertia (Gargiulo & Bernassi, 1999). When relational trust pervades the networking activities, managers will pay more attention to actors that are believed to be credible. Unfamiliar sources, in contrast, are likely to be overlooked, ignored or even suppressed. As a consequence, the identification and determination of potential international opportunities will be selective and biased (Zahra et al., 2006). Not only will the manager become isolated from other sources of information, but often, the high level of trust in informal inter-personal networks can lead to the transmission of inferior information. Feelings of obligation and friendship may discourage network members from questioning each other's motives or from critically assessing the failures of the projects that their network partners might have initiated (Coleman, 1988; Uzzi, 1997; Zahra et al., 2006). Although informal inter-personal networks may provide support, they may not be qualified to provide an unbiased judgement (Birley, 1985).

Second, informal inter-personal networks are more time consuming to set up and maintain. The costs of formal networks can often be specified as the price of obtaining specific information. However, informal networks first require a considerable amount of

time and energy to establish and maintain those relationships (Jack, 2005; Jack et al., 2008; Julien, Andriambeloson, & Ramangalahy, 2004). Since informal inter-personal networks are based on trust and not legally binding contracts, they require a certain relationship quality to motivate the network actors to grant one another access to their resources (Krackhardt, 1992; McFadyen & Cannella, 2004). Significant interaction frequency and intensity is required to develop relationships of such quality (Aldrich & Reese, 1993; Chunyan, 2005). As a result, developing and maintaining informal inter-personal networks reduces the amount of time SME managers have available for overcoming other challenges of internationalisation, e.g., mastering the loss of a national advantage and/or the lack of complementary resources (Cuervo-Cazurra et al., 2007). Although an extensive time investment will most likely lead to information benefits, Hansen (1998) showed that such strong ties are often too costly to maintain.

Third, the reliance on trust within informal inter-personal networks will increase knowledge-sharing risks for the focal network actor. Zahra, Yavuz and Ucbasaran (2006) highlighted the compliance in literature that trust involves a willingness to be vulnerable (Barney & Hansen, 1994; Mayer, Davis, & Schoorman, 1995; Rousseau, Sitkin, Burt, & Camerer, 1998), positive expectations towards the actions of others (Das & Teng, 1998; Lewicki, McAllister, & Bies, 1998), and mutual interdependence and risk (Das & Teng, 1998, 2001; Gulati, 1995; Mayer et al., 1995). Therefore, trust increases SME managers' confidence that other network members will not take advantage of their openness (McEvily, Perrone, & Zaheer, 2003). They more easily share their knowledge and thus are more vulnerable to people that may take advantage of their trust and act opportunistically (Zahra et al., 2006). Furthermore, the solidarity amongst certain members can divide the broader aggregate of network relationships into warring sub-groups (Foley & Edwards, 1996). By bringing together unsatisfied actors,

collective activities can deepen social cleavages and thus encourage opportunistic behaviour (Portes, 1998). For the reasons stated above, we believe that informal inter-personal networks bear risks that outweigh their benefits for the focal actor. Thus, we present the following hypothesis:

Hypothesis 2. SME managers' informal inter-personal networking is negatively related to SME internationalisation.

3.3 MODERATING EFFECT OF THE SME OF BEING A FAMILY FIRM

The next hypotheses examine the moderating effect of the SME of being a family firm on the strength of the network–internationalisation relationship. From a risk-minimising strategy perspective, family firms should prefer to engage in internationalisation because it spreads their risk over several markets and lowers the firm's dependence on revenues generated in a single domestic context (Gomez-Mejia, Cruz, Berrone, & De Castro, 2011). Indeed, prior studies have indicated a lower total risk exposure for multinational firms than those that operate only in their home countries (e.g., Agmon & Lessard, 1977; Collins, 1990; Fatemi, 1984). The evidence is inconclusive. Using four indicators of internationalisation, Gomez-Mejia et al. (2010) found that family firms exhibit lower levels of internationalisation than non-family firms on any of the indicators. As a possible explanation, Eberhard and Craig (2012) showed that family firms are less capable than non-family firms to exploit positive internationalisation benefits from their inter-organisational networks. However, these authors could not establish any difference in the moderating effect of inter-personal networks. This thesis argues that they failed because they did not differentiate these

networks based on their formality and hence the effects may have cancelled each other out. In the following, we show that family firms' capability to make use of their inter-personal networks is different for formal and informal networks. On the one hand, family firm managers have limited proficiencies to exploit their formal inter-personal networks. On the other hand, family firm managers can reduce the negative impact of their informal inter-personal networks.

3.3.1 MODERATING EFFECT OF THE SME OF BEING A FAMILY FIRM ON FORMAL INTER-PERSONAL NETWORKS AND SME INTERNATIONALISATION LINK

As illustrated above, formal inter-personal networks positively influence firms' internationalisation through the transfer of tacit knowledge. Highly effective collaborative networks possess a mutual understanding (Dhanaraj, Lyles, Steensma, & Tihanyi, 2004) as well as openness and transparency (Hamel, 1991). Family firms, however, often come into conflict with other stakeholders, who may threaten family control (Martin, Makri, & Gomez-Mejia, 2011). Family firms are motivated by the preservation of non-financial or affective utilities, such as a sense of legacy and family control, among many others (Gomez-Mejia et al., 2011). Hence, family owners are more likely to disagree with partners who do not share the family's views (Martin et al., 2011). Formal inter-personal network partners (e.g., venture capitalists, accountants, creditors, banks, lawyers, consultants, and trade associations), however, respond to focal network actor's specific needs and, consequently, may disagree with the strategic direction of the respective firm. The strong values and tradition, inherent in most family firms, lead to a rigidity that is difficult to overcome (Levinson, 1971), and thus may lessen the positive impact of formal inter-personal networks.

In addition, family firms are often characterised by a consciously created lack of transparency towards non-family members in regards to the firm's financial situation (Ward, 1997) and management actions (Bautista, 2002; Kotey, 2005; Morck, Shleifer, & Vishny, 1988). This is because family outsiders are not to be trusted and may be regarded as potential troublemakers (Dyer, 2006). Family firms will thus encounter challenges building trust relationships with partners in growth and restructuring phases such as the firm's internationalisation (Wong & Kleiner, 1994). Consequently, the exchange of information between the family firm and non-family network actors is hampered and decision-making activities are constrained to the point that alternative perspectives from outside the family circle tend to be overlooked (Kellermanns & Eddleston, 2004). As a result, family firms may benefit less from the open exchange of tacit knowledge between inter-personal network partners. Therefore, we hypothesise:

Hypothesis 3. The positive relationship between formal inter-personal networking and SME internationalisation is weaker for family firms than for non-family firms.

3.3.2 MODERATING EFFECT OF THE SME OF BEING A FAMILY FIRM ON INFORMAL INTER-PERSONAL NETWORKS AND SME INTERNATIONALISATION LINK

As described earlier, the sole reliance on trust as bonding factor between informal inter-personal networks will facilitate undesirable network effects, i.e. limited strategic options, time investment, and knowledge sharing risks. In the following, we argue that being a family firm reduces the risk of those unwanted outcomes and thus weakens the negative relationship between informal inter-personal networks and firm internationalisation. On the one hand, family firm managers have less risk of betrayal

from their informal inter-personal network partners. As explained earlier, false trust makes managers vulnerable to people who take advantage of information exchanged in networks and act opportunistically (Zahra et al., 2006). Family firms meet external partners with extreme caution, even suspicion. This caution, which may obstruct the transfer of tacit knowledge, as seen above, helps protect the firm from infiltrators (Wong & Kleiner, 1994). Freudenberger, Freedheim and Kurtz (1989) suggest that some family firm managers do not trust their non-family employees. This ‘protection shield’ will lead to a decreased risk exposure for family firms towards knowledge-sharing risks in informal inter-personal networks.

Furthermore, family firms have strong norms and formal codes of ethical behaviour, which are also reflected in their relationships with informal network partners (Hoffman, Hoelscher, & Sorenson, 2006). Strong family norms include obligations and expectations, identity, and moral infrastructure that can be viewed as the positive interactions that occur between individuals in a network (Chang, Memili, Chrisman, Kellermanns, & Chua, 2009). They increase the efficiency of exchange relationships and reduce external unknowns (Hoffman et al., 2006). The family provides a role model of moral behaviour from which members derive guidelines for collaboration and cooperation as well as principles of reciprocity and exchange (Bubolz, 2001). Hence, individuals who are part of a family firm network can rely on each other and are more willing in helping to solve the problems of cooperation and coordination (Knez & Camerer, 1994; Nahapiet & Ghoshal, 1998). Therefore, the family framework encourages relationships that are less vulnerable to exploitive behaviour by other network partners. These arguments lead to the following hypothesis:

Hypothesis 4. The negative relationship between informal inter-personal networking and SME internationalisation is weaker for family firms than for non-family firms.

3.4 MODERATING EFFECT OF SLACK RESOURCES

As highlighted by Daniel et al. (2004), future studies incorporating slack resources should investigate how firms translate organisational slack resources into higher performance. In particular, research into intervening processes (e.g., networking) is important to study how firms employ slack to improve performance through intervening steps. By responding to this call, we examine the availability of slack on the inter-personal network – internationalisation relationship to answer research question 4.

3.4.1 MODERATING EFFECT OF SLACK RESOURCES ON FORMAL INTER-PERSONAL NETWORKS AND SME INTERNATIONALISATION LINK

As outlined in the first hypothesis, formal inter-personal networks provide SME managers with tacit knowledge and non-redundant information that lead to an increased firm internationalisation. Thus far, this research has neglected the firm's internal resource capabilities that enable SME managers to react on those opportunities provided by their formal inter-personal networks. In order to exploit international opportunities, firms must possess appropriate resources (Hitt, Bierman, Uhlenbruck, & Shimizu, 2006). Unlike inter-organisational networks (i.e. joint ventures, strategic alliances) which provide the firm with access to key resources (Das & Teng, 2000; Eisenhardt & Schoonhoven, 1996), inter-personal networks propel the initial opportunity discovery

process (Eberhard & Craig, 2012). In order to exploit opportunities, however, firms need access to suitable resources (Barney, 1991; Sirmon, Hitt, & Ireland, 2007). Resource-poor firms cannot capitalise upon opportunities open up in new markets. They typically lack distinctive capabilities with which to exploit and attract other complementary resources or to learn of new opportunities by sharing current resources (Madhavan et al., 1998; Park et al., 2002).

George (2005) showed that a firm's resource endowment influences managerial decision-making in privately held firms and thus may affect how its managers respond to external stimuli. One such resource involves organisational slack, defined as the difference between the firm's total resources and demands on those resources (Cyert & March, 1963). From a behavioural perspective, innovation and market expansion are more acceptable in the presence of excess resources because they protect the firm from downside risks (Baird & Thomas, 1985; Singh, 1986). This is because slack protects the firm from environmental shocks, should new initiatives fail, which further encourages proactive and risky behaviour (Marino et al., 2008; Zahra & Covin, 1995). Slack allows managers to be more proactive and experiment with new strategies such as entering new markets (Geiger & Makri, 2006; Tan & Peng, 2003). It relaxes internal controls and provides funds that can be utilised toward projects with uncertain outcomes such as an international expansion (George, 2005; Nohria & Gulati, 1996). In regards to inter-personal networks, Huang and Li (2012) have shown that learning from other individuals is more effective on project performance with substantial levels of slack. We argue that managers working in firms with slack are more likely to take action based on the information they receive from their formal inter-personal networks. Conversely, lack of organisational slack inhibits a manager's ability to exploit international opportunities derived from formal inter-personal network.

In cases of excessive levels of slack, however, we assume the reversal of this relationship. Managers in firms with very large resource endowments might be less impelled to pursue new and experimental growth alleys that are provided by their formal inter-personal networks because their willingness to behave entrepreneurially and act upon opportunities declines with substantial access to organisational slack. Managers become complacent, risk-averse and inward-looking since they try to protect current positions (Bradley et al., 2011). Another possibility is that managers become too optimistic, which might cause them to implement inappropriate strategies (Cooper, Woo, & Dunkelberg, 1988; Meza & Southey, 1996). Not only may bad projects be initiated, the existence of excessive slack makes it difficult to justify termination of someone's project, resulting in an escalating commitment (Ross & Staw, 1993; Staw, Sandelands, & Dutton, 1981). Both biases are likely to occur at high levels of slack (George, 2005), and will ultimately lead to a reduction of the positive effects of formal inter-personal networks on SME internationalisation. Therefore, we propose a curvilinear relationship that, ideally, firms should have enough resources to allow managers to exploit international opportunities provided by their formal inter-personal networks but limited enough to prevent managers' from irresponsible and risk averse behaviour. Theoretically, by adding the two countervailing forces together, we state the following hypothesis:

Hypothesis 5. The positive relationship between formal inter-personal networking and SME internationalisation will first increase and then decrease with increases in organisational slack.

In order to test this hypothesis, the general construct of organisational slack will be refined into the three different types of slack resources: available, potential, and recoverable (Bourgeois & Singh, 1983; Sharfman et al., 1988). Consequently, we derive with the following testable hypotheses:

Hypothesis 5a. The positive relationship between formal inter-personal networking and SME internationalisation will first increase and then decrease with increases in available slack resources.

Hypothesis 5b. The positive relationship between formal inter-personal networking and SME internationalisation will first increase and then decrease with increases in potential slack resources.

Hypothesis 5c. The positive relationship between formal inter-personal networking and SME internationalisation will first increase and then decrease with increases in recoverable slack resources.

3.4.2 MODERATING EFFECT OF SLACK RESOURCES ON INFORMAL INTER-PERSONAL NETWORKS AND SME INTERNATIONALISATION LINK

As described previously, the knowledge-sharing risk in informal inter-personal networks might hinder a firm's successful internationalisation. This knowledge-sharing risk is more prevalent in networks with a high conflict potential among the network partners (Panteli & Sockalingham, 2005). This is true because a smouldering conflict creates incentives for opportunistic behaviour by one or more network actors. This opportunistic behaviour, in turn, may then be perceived by other network actors as a betrayal that can result in mutually damaging actions (Kumar & Dissel, 1996). Interestingly, slack can serve as a resource to smoothen conflict among network

members (March, 1994; Tan & Peng, 2003). “With sufficient slack, there will be a solution for every problem, and enough participants for choice situations” (Moch & Pondy, 1977, p.356). Slack resources decrease the potential for conflicts, and prevent members of teams or networks, from escalatory dissent and dissatisfactory relationships (Keegan & Turner, 2002; Tan & Peng, 2003). Conversely, in times of limited resources, managers spend a lot of time bargaining for their fair share in collaborative arrangements (Cheng & Kessner, 1997). As a result, organisational slack resources may reduce conflict potential among network partners, which should lead to fewer of the knowledge-sharing risks prevalent in informal inter-personal networks and hence mitigate the negative effect on SME internationalisation.

Additionally, in times of accessible slack resources, SME managers are likely to have more freedom in their responses and actions (George, 2005). This should be true also in regards to their informal inter-personal network partners. According to the liability of foreignness/smallness argument, SME managers in firms with limited slack resources are more reliant on their informal inter-personal networks, and hence should be more exposed to the potential negative effects. Increasing slack resources, however, reduce the SME manager’s dependency on informal inter-personal networks, and open alternative ways to explore international opportunities (Lin, Cheng, & Liu, 2009). For example, to access information about international opportunities, SME managers in resource-constrained firms can often solely approach their informal inter-personal networks (Hite & Hesterly, 2001; Ibeh & Kasem, 2011). If the firm has slack resources available, SME managers are able to access additional information, and if required, challenge the information obtained from their informal inter-personal networks. This way, slack resources provide SME managers with the additional possibility to detect

inferior information, and ultimately lessen the potential negative impact of informal inter-personal networks. Therefore, we conclude with the following hypothesis:

Hypothesis 6. The negative relationship between informal inter-personal networking and SME internationalisation is weaker for firms with more organisational slack.

In accordance with the definition of slack resources and the previously developed hypothesis, we derive with the following testable sub-hypotheses:

Hypothesis 6a. The negative relationship between informal inter-personal networking and SME internationalisation is weaker for firms with more available organisational slack.

Hypothesis 6b. The negative relationship between informal inter-personal networking and SME internationalisation is weaker for firms with more potential organisational slack.

Hypothesis 6c. The negative relationship between informal inter-personal networking and SME internationalisation is weaker for firms with more recoverable organisational slack.

3.5 SUMMARY

The objective of this chapter was to develop a theoretical model and testable hypotheses in order to answer research question 1 to research question 4. The full model is depicted in Figure 3. A summary of the derived hypotheses can be seen in Table 2.

Figure 3: The conceptual model

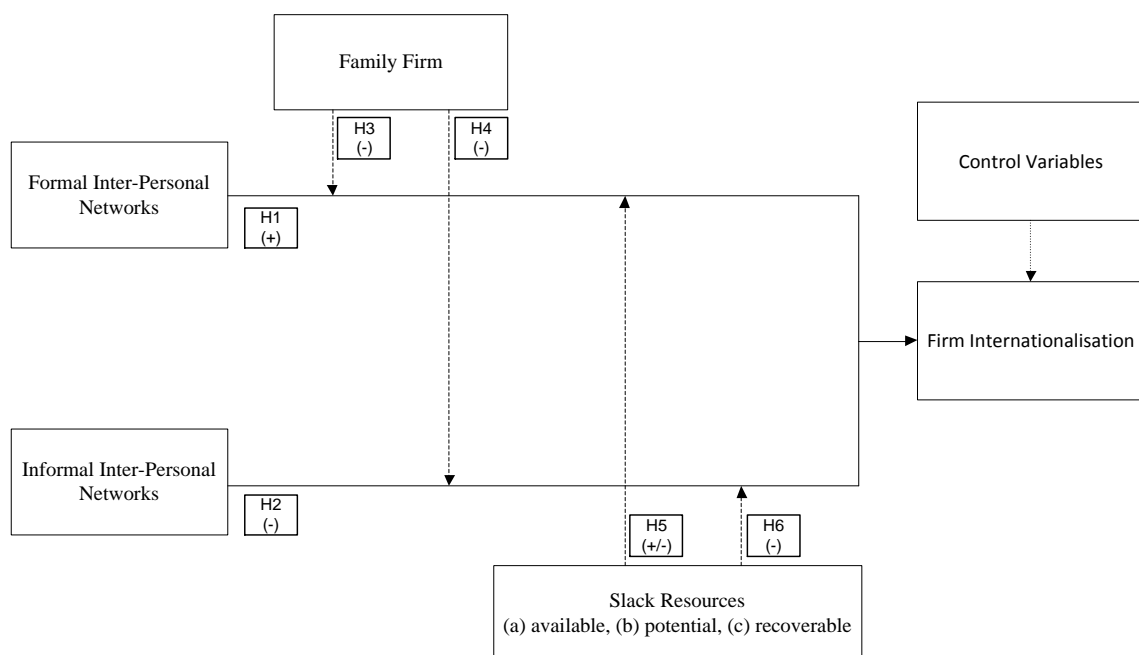


Table 2: Summary of hypotheses

Research Question	Hypotheses
<i>Research Question 1:</i> How do SME managers' formal inter-personal networks affect SME internationalisation?	Hypothesis 1: SME managers' formal inter-personal networking is positively related to SME internationalisation.
<i>Research Question 2:</i> How do SME managers' informal inter-personal networks affect SME internationalisation?	Hypothesis 2: SME managers' informal inter-personal networking is negatively related to SME internationalisation.
<i>Research Question 3:</i> How does being a family firm influence the relationship between formal/informal inter-personal networks and SME internationalisation?	<p>Hypothesis 3: The positive relationship between formal inter-personal networking and SME internationalisation is weaker for family firms than for non-family firms.</p> <p>Hypothesis 4: The negative relationship between informal inter-personal networking and SME internationalisation is weaker for family firms than for non-family firms.</p>
<i>Research Question 4:</i> How do slack resources influence the relationship between formal/informal inter-personal networks and SME internationalisation?	<p>Hypothesis 5: The positive relationship between formal inter-personal networking and SME internationalisation will first increase and then decrease with increases in (a) available, (b) potential, (c) recoverable organisational slack.</p> <p>Hypothesis 6: The negative relationship between informal inter-personal networking and SME internationalisation is weaker for firms with more (a) available, (b) potential, (c) recoverable organisational slack.</p>

Chapter 4: Method

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4.1 INTRODUCTION

This chapter explains the methodological approach used in this study. The study involves a quantitative analysis with longitudinal data derived from the Australian Bureau of Statistics (ABS). In the following, we highlight the study's research design, data and sample selection, variables, and data analysis techniques used to answer the research questions through the testing of the previously developed hypotheses.

4.2 RESEARCH DESIGN

This study utilised a quantitative research approach. The term 'quantitative' refers to having many cases, applying formal measurements, and using statistical analysis techniques

(Davidsson, 2004). In order to test the hypotheses developed in chapter 3 and to determine the effect of inter-personal networks on firm internationalisation, it is required to have data of a statistically representative sample of SMEs collected over a period of years. The statistically representative sample is an important distinction, since most prior studies in this research area have concentrated on case-study designs only. In order to make generalizable assumptions, however, it is important to test theory based on large scale data. The longitudinal design is important, since using cross-sectional data alone makes it difficult to properly examine the causality of relationships. In particular, longitudinal design is important when testing impact of networks on firm performance (Watson, 2007) because there may be a time delay between the networking activity and the resulting anticipated results (Havnes & Senneseth, 2001). In addition, the use of longitudinal data reduces the possibility of a common method bias, which if apparent, could confound the interpretations of our results (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

4.3 DATA

The data employed in this research was derived from the Business Longitudinal Survey (BLS) undertaken by the ABS on behalf of the Australian federal government during the four financial years from 1994–1995 to 1997–1998 (inclusive). The BLS was designed to study the growth and performance of Australian businesses and to identify selected economic and structural characteristics of these businesses for the federal government. All employing businesses in the Australian economy were included in the scope of the survey, except for the following industry sections: government enterprises and administration, defence, education, and health and community services, libraries, museums, agriculture, forestry and fishing, parks and gardens, private households employing staff, electricity, gas, and water supply, and

communication services (see Appendix A for the Australian and New Zealand Standard Industrial Classification (ANZSIC)). Data collection was obtained through self-administered, structured questionnaires mainly containing closed questions. Along with ongoing annual questions, each questionnaire incorporated one-off questions about certain matters of policy of interest to the government at the time of the collections. The information was collected under the authority of the Census and Statistics Act 1905, which allows the ABS to legally enforce compliance with its data requests; as a result, response rates were high, exceeding 90%. Besides the response rate and its longitudinal design, the major advantage of the survey is the inclusion of financial data that is normally not accessible to SME researchers. The specific BLS data used in this research are included in a confidentialised unit record file released by the ABS in December 1999.

4.4 SAMPLE

In total, 9731 businesses employing less than 200 people (broadly representing SMEs in the Australian context) are included in the confidentialised unit record file. Respondents to the survey included the ‘management unit’, the highest hierarchy level within a business unit. The relevant inter-personal network questions were asked only in the 1995–1996 survey, so, in this study, we were able to use these as independent variables only from that period. The dependent variable was taken from the subsequent periods of 1995–1996, 1996–1997, and 1997–1998. Consequently, we could only include businesses that were already active in 1995–1996 and excluded all businesses that started operating afterwards. This procedure decreased the usable sample size to 5027 businesses. Further, we only included those businesses that survived to the last year of the survey (businesses that were operating in all three consecutive years). Their exclusion enabled the examination of the proposed

relationships over time and extraction of the potential distorting effect of ceased businesses on the proposed relationships. This reduced the usable sample size to 4278 businesses. To ensure that firms included in the survey were operational over the three year time period, we eliminated all businesses that reported no employees and/or sales, and/or assets, and/or equity in any of the surveys. We further excluded all firms that due to reporting mistakes, displayed higher exports than total turnover. This ‘data cleaning’ procedure rendered a usable sample size of 2344 respondents.

Table 3 displays the industry distribution of the sampled firms. The detailed industry distribution with all sub-divisions can be found in Appendix B. It shows that the majority of firms fall into the manufacturing sector (43.56%). The wholesale trade (19.50%) and the property and business services (10.45%) sectors represent the second and third largest industry groups among the sampled firms. From Appendix C, it can be seen that almost 50% of the sampled firms were younger than 12 years and 12.41% were older than 30 years. As displayed in Appendix D, 316 (13.48%) firms fall into the category of micro-businesses (< 5 employees), 773 (32.98%) firms can be classified as small-sized businesses (5 – 19 employees), and the remaining 1256 (53.54%) firms are medium-sized businesses (20 – 199 employees).

Table 3: Distribution of firms by industry

BLS Code	Industry Description	n	%
100	Mining	20	0.85%
200	Manufacturing	1021	43.56%
300	Construction	111	4.74%
400	Wholesale Trade	457	19.50%
500	Retail Trade	228	9.73%
600	Accommodation, Cafes and Restaurants	71	3.03%
700	Transport and Storage	74	3.16%
800	Finance and Insurance	43	1.83%
900	Property and Business Services	245	10.45%
1000	Cultural and Recreational Services	45	1.92%
1100	Personal and Other Services	29	1.24%
Totals		2344	100%

4.5 MEASUREMENT OF VARIABLES

4.5.1 INTERNATIONALISATION

We measured firm internationalisation by export intensity, a well-established measure of a firm's international expansion (Fernhaber, Gilbert, & McDougall, 2008; Sullivan, 1994). Defined as the ratio of exports to total sales (Lu & Beamish, 2001), export intensity is a valid measure for SME internationalisation because most SMEs usually perform international business in the form of exports (Brouthers, Nakos, Hadjimarcou, & Brouthers, 2009; Reuber & Fischer, 1997; Sciascia et al., 2012). This measure helps capture the extent and importance of exposure to foreign markets (Sciascia et al., 2012).

As noted previously, one of the major strengths of the survey is its longitudinal design. There may be a time delay from the networking activity to the actual anticipated firm result (Havnes & Senneseth, 2001). For this reason, we measured export intensity by the sum

of the annual export sales divided by the sum of the total sales over the 3 years incorporated. This number was then multiplied by 100 for percentage notation. We also show the regression results for each year separately. These do not differ to the compound measure.

4.5.2 INTER-PERSONAL NETWORKS

We measured inter-personal networks by the size of the manager's advice network. In line with Manolova et al. (2010) and the position generator approach (Carter, Brush, Greene, Gatewood, & Hart, 2003; Lin & Dumin, 1986), the respondents received a list of 10 sources from which they would typically seek advice. Advice networks consist of relationships through which individuals share resources, assistance and guidance (Sparrowe, Liden, Wayne, & Kraimer, 2001). According to Hoang and Antoncic (2003), seeking advice (and information) is one of the main purposes of networking. In line with Birley (1985) and Das and Teng (1997), we classified these ties into *formal inter-personal networks* (i.e., external accountants, banks, solicitors, business consultants, industry association/chamber of commerce, Australia taxation office, and government small business agencies) and *informal inter-personal networks* (i.e., family or friends, others in industry, and local businesses). As mentioned previously, formal inter-personal networks are usually not in the business of diagnosing needs, but rather of satisfying them by responding to specific requests. This is the case for all of our seven formal network actors. In contrast, informal inter-personal networks may be less informed about the options and schemes open to the manager; however, they are generally more willing to listen and to give advice (Birley, 1985). This should be true for all of our three informal network actors (i.e., family or friends, others in industry, and local businesses). The following studies support this assumption: First, Ojala (2009) describes relationships with *family and friends* as informal inter-personal networks. Second, Inkpen and

Tsang (2005) state that networks between individuals from the *same industry* are established through informal inter-personal relations. Third, Fernhaber and Li (2012) classify geographically *local businesses* as informal network partners. To assess the internal consistency of the inter-personal network measure, we have conducted an exploratory factor analysis, which supports our theoretical argumentation. The results are shown in chapter 5.

Furthermore, the respondents could indicate how frequently during the year (0 = never; 1 = 1-3 times; 2 = more than 3 times) they sought advice from these sources. Consistent with Watson (2007), we computed the overall measure as the sum of all reported ties multiplied by the intensity of the contacts. For example, a respondent who approached all seven formal networks more than three times a year would receive a maximum formal inter-personal network score of '14'. In the same way, a respondent who approached all three informal networks more than three times a year would receive a maximum score of '6' for his/her informal inter-personal network. If a respondent did not approach any of the network contacts, he or she receives the minimum score of '0'. As the network question was only asked in the 1995/1996 survey, we assume that the respondents did not change their networking behaviour significantly over the succeeding years. We acknowledge this as a potential limitation of this study. Alternatively, Eberhard and Craig (2012) have shown a time lag effect between the networking activity and the anticipated results. Consequently, it is appropriate to examine firm internationalisation in succeeding periods, regardless of potential variations in the networking behaviour in later periods.

4.5.3 FAMILY FIRM

According to the discussion in chapter 2, we use the core constructs of ownership and management (Berle & Means, 1932) and the behavioural dimension as suggested by Chua et

al. (1999) to define family firms. Consequently, we identified family firms using a multi-dimensional approach. Businesses were classified as family firms if they fulfilled the following criteria: (1) considered themselves family firms (Okoroafo, 1999), (2) were majority family owned (>50%), and (3) had a family owner in management (e.g., Abdellatif et al., 2010; Fernandez & Nieto, 2006; Sciascia et al., 2012).

4.5.4 SLACK RESOURCES

There exist a variety of definitions in which slack has been operationalized in the literature (Daniel et al., 2004). Previous research has mostly captured it employing either objective (e.g., liquidity) or perceived measures (low/high). Due to the availability of financial data in the BLS, we were able to follow the work of Bourgeois (1981), which assesses slack based on financial information. We have used three measures of slack. The first, the '*current ratio*', determines the firm's potential to meet its immediate obligations with available liquid resources. The second measure, the *debt-to-equity ratio*, indicates the firm's unused borrowing capacity. The freedom to reallocate resources or raise additional capital becomes restricted with increasing debt level (George, 2005). Important for the interpretation of this variable is that increasing values of the debt-to-equity ratio actually indicates decreasing slack levels. The third measure, the *ratio of R&D expenditures to total sales*, indicates the amount of slack dedicated to future growth strategies. These three measures assess the amount of available slack (current ratio), potential slack (debt/equity), and recoverable slack (R&D/sales) present for a firm at a specific time. The measures are consistent with those utilised in previous studies (e.g., Bromiley, 1991; Cheng & Kessner, 1997; Hitt, Hoskisson, & Kim, 1997). In addition, George (2005) points out that according to the variety in industry context, it is likely that slack also differs across industries. In line with

the George (2005) study, we calculated slack as the deviation from the mean of each of the 37 industry subsectors, and used the recalculated data for the analysis. The survey instruments for the model variables are shown in Appendix E.

4.5.5 CONTROL VARIABLES

This study employed several control variables that prior empirical research has found to significantly influence SME internationalisation. First, we controlled for firm size (Mesquita & Lazzarini, 2008), firm age, dominant business-level strategy (Manolova et al., 2010), and strategic planning systems (Saimee et al., 1993). We measured *firm size* as the number of employees. Because of the positive skewness of the employment data, we used the natural logarithm of employment in all regressions. *Firm age* is the number of years the business has been in existence (from 1 = less than 2 years to 16 = 30 or more years). We measured the *dominant business-level strategy* according to whether the business intended to increase production levels, open new locations, and introduce new products. We controlled for *strategic planning systems* by measuring whether the business had one of the following planning systems: a formal business plan, budget forecasting, regular income/expenditure reports, and comparison of performance with other businesses. Because business-level strategy and strategic planning systems influence the firms' behaviour in the subsequent year and onwards, we used the firms' responses in the preceding year as controls.

Second, as mentioned previously, the respondents of the survey were recruited from the firms' highest hierarchy level. The decision-making within the typical SME is likely to be determined by only one or sometimes few individuals (Lloyd-Reason & Mughan, 2002). Consequently, we can assume that it was the firm's decision-maker who participated in the survey. This decision maker controls the firm's critical resources and will have a say in

investment and expansion decisions (Chetty, 1999; Forsgren, 1989). Several authors stated that the decision maker's characteristics determine the firm's internationalisation strategy (e.g., Bloodgood, Sapienza, & Almeida, 1996; Reid, 1981). Consequently, we controlled for the *decision maker's personal background* (Leonidou et al., 1998; Manolova et al., 2010) using level of education (from 1 = school to 3 = tertiary) and years of experience.

Third, we controlled for 11 *industries* and their sub-divisions according to the ANZSIC classification. Each industry variable equals 1 if the observation falls within that industry and zero otherwise. Industry sub-division detail is only available for businesses employing less than 100 people. All businesses employing 100 or more people are collapsed into one industry. For the regression, we used industry 1195 as the benchmark industry. Table 4 provides an overview of all variables and measures used in this study.

Table 4: Measurement of variables

Variable Type	Variable	Measure	Data Range
Dependent Variables	Firm internationalisation	$Export\ intensity = ((\text{exports } 95/96 + \text{exports } 96/97 + \text{exports } 97/98) / (\text{sales } 95/96 + \text{sales } 96/97 + \text{sales } 97/98)) * 100$	$0 \leq X \leq 100$
Independent Variables	Formal inter-personal networks	<i>Formal inter-personal networks</i> = external accountants (1=yes; 0=no) * (1=1-3 times; 2=more than 3 times) + banks (1=yes; 0=no) * (1=1-3 times; 2=more than 3 times) + solicitors (1=yes; 0=no) * (1=1-3 times; 2=more than 3 times) + business consultants (1=yes; 0=no) * (1=1-3 times; 2=more than 3 times) + industry association (1=yes; 0=no) * (1=1-3 times; 2=more than 3 times) + Australian taxation office (1=yes; 0=no) * (1=1-3 times; 2=more than 3 times) + government small business agencies (1=yes; 0=no) * (1=1-3 times; 2=more than 3 times)	$0 \leq X \leq 14$
	Informal inter-personal networks	<i>Informal inter-personal networks</i> = family/friends (1=yes; 0=no) * (1=1-3 times; 2=more than 3 times) + others in industry (1=yes; 0=no) * (1=1-3 times; 2=more than 3 times) + local business (1=yes; 0=no) * (1=1-3 times; 2=more than 3 times)	$0 \leq X \leq 6$
Moderating Variables	Family firm	<i>Family firm</i> (yes = 1), if 'consider the business to be a family business' = yes AND family ownership > 50% AND at least 1 family member in management	yes = 1; no = 0
	Slack resources	<i>Available slack</i> : current ratio - industry mean <i>Potential slack</i> : (debt / equity) - industry mean <i>Recoverable slack</i> : (R&D expenditures / sales) - industry mean	Continuous Continuous Continuous
Control Variables	Firm size	(ln) number of employees	Continuous
	Firm age	Number of years the business has been in existence	$(1 = \text{less than 2 years}) \leq X \leq (16 = 30 \text{ or more years old})$
	Dominant business-level strategy	Significantly increase production level Open new locations Introduce new goods or services	yes = 1; no = 0 yes = 1; no = 0 yes = 1; no = 0
	Strategic planning systems	A formal business plan Budget forecasting Regular income/expenditure reports Comparison of performance with other businesses	yes = 1; no = 0 yes = 1; no = 0 yes = 1; no = 0 yes = 1; no = 0
	Decision-maker's educational level	Highest educational level obtained	1 = school ; 2 = trade; 3 = tertiary
	Decision-maker's years of experience	Year of experience	Continuous
	Industries	ANZSIC classification	see Appendix A

4.6 DATA ANALYSIS

Data analysis incorporated univariate, bivariate, and multivariate statistics. We used *univariate* statistics to calculate frequencies, means and standard deviations. Those statistics measure the distribution, central tendency and dispersion of data included in this analysis. We employed *bivariate* statistics in the form of correlation coefficients to examine relationships between two variables. We used *multivariate statistics* to perform an exploratory factor analysis for the inter-personal network measure. Most importantly, we used multivariate statistics to test the hypotheses developed in the theoretical model of this dissertation. In specific, multiple regression modelling is performed as a multivariate technique for this purpose.

To explore whether the inter-personal network items actually measure the same construct (formal versus informal), we applied a principal component analysis with oblimin rotation for the factor analysis. According to Hair et al. (2010), a factor analysis has the primary purpose of defining the underlying structure among variables. Rotating the factor matrix helps to achieve a simpler and theoretically more meaningful pattern (Hair et al., 2010). The oblimin rotation, unlike varimax rotation, does not arbitrarily constrain the factor rotation to an orthogonal solution, but instead identifies the extent to which each of the factors is correlated (Dean & Sharfman, 1993; Hair et al., 2010). Hair et al. (2010) recommend applying the oblimin rotation in cases the factors are conceptually linked with each other. In this study, it is reasonable to expect that the inter-personal network dimensions would be correlated and hence the application of the non-orthogonal oblimin rotation is justified.

To test the hypothesised relationships, we used multiple regression analysis. Multiple regression analysis is a statistical technique that measures the relationship between one dependent variable and several independent variables. Each independent variable is weighted by the regression procedure to guarantee maximal prediction power from the set of independent variables (Hair et al., 2010). This analysis technique has been used extensively in prior literature for testing hypotheses and predicting values for dependent variables, e.g., networks and internationalisation (e.g., Elango & Pattnaik, 2007; Ellis, 2011; Manolova et al., 2010). In this study, we do not intend to use multiple regression analysis to generate a comprehensive model to predict SME internationalisation, but to determine whether interpersonal networks affect SME internationalisation. Consequently, the research is designed to allow discussion of the quantitative results of the multiple regression analysis in relation to the significance of the β coefficients added into the model. The form of the multiple regression analysis can be stated as:

(i) Only including control variables

$$\begin{aligned}
 \text{Internationalisation}(i, j) = & \alpha (\text{Constant}) + \beta 1 (\text{Size})(i, j) + \beta 2 (\text{Age})(i, j) + \\
 & \beta 3 (\text{Experience})(i, j) + \beta 4 (\text{Education})(i, j) + \beta 5 (\text{Family Firm})(i, j) + \\
 & \beta 6 (\text{Current Ratio})(i, j) + \beta 7 (\text{Debt/Equity Ratio})(i, j) + \beta 8 (\text{R\&D/Sales})(i, j) + \\
 & \beta 9 (\text{Production Level})(i, j) + \beta 10 (\text{Open Locations})(i, j) + \\
 & \beta 11 (\text{Introduce Products})(i, j) + \beta 12 (\text{Formal Plan})(i, j) + \\
 & \beta 13 (\text{Budget Forecasting})(i, j) + \beta 14 (\text{Regular Reports})(i, j) + \\
 & \beta 15 (\text{Performance Comparison})(i, j) + \beta 16 (\text{Industry 100})(i, j) + \dots + \\
 & \beta 50 (\text{Industry 1093})(i, j)
 \end{aligned}
 \tag{Eq.1a}$$

(ii) Adding explanatory variables (Hypotheses 1 & 2):

$$+ \beta_{51} (\text{Formal Inter} - \text{Personal Networks})(i, j) + \beta_{52} (\text{Informal Inter} - \text{Personal Networks})(i, j) \quad (\text{Eq.1b})$$

(ii) Adding interaction terms to Eq. 1b (Hypotheses 3 & 4)

$$+ \beta_{53} (\text{Formal Inter} - \text{Personal Networks} * \text{Family Firm})(i, j) + \beta_{54} (\text{Informal Inter} - \text{Personal Networks} * \text{Family Firm})(i, j) \quad (\text{Eq.1c})$$

(iii) Adding interaction terms to Eq. 1b (Hypothesis 5)

$$\begin{aligned} &+ \beta_{55} (\text{Formal Inter} - \text{Personal Networks} * \text{Current Ratio})(i, j) + \\ &\beta_{56} (\text{Formal Inter} - \text{Personal Networks} * \text{Current Ratio}^2)(i, j) + \\ &\beta_{57} (\text{Formal Inter} - \text{Personal Networks} * \text{Debt/Equity Ratio})(i, j) + \\ &\beta_{58} (\text{Formal Inter} - \text{Personal Networks} * (\text{Debt/Equity Ratio})^2)(i, j) + \\ &\beta_{59} (\text{Formal Inter} - \text{Personal Networks} * \text{R\&D/Sales})(i, j) + \beta_{60} (\text{Formal Inter} - \\ &\text{Personal Networks} * (\text{R\&D/Sales})^2)(i, j) + \beta_{61} (\text{Current Ratio})^2(i, j) + \\ &\beta_{62} (\text{Debt/Equity Ratio})^2(i, j) + \beta_{63} (\text{R\&D/Sales})^2(i, j) \end{aligned} \quad (\text{Eq.1d})$$

(iv) Adding interaction terms to Eq. 1b (Hypothesis 6)

$$\begin{aligned} &+ \beta_{64} (\text{Informal Inter} - \text{Personal Networks} * \text{Current Ratio})(i, j) + \\ &\beta_{65} (\text{Informal Inter} - \text{Personal Networks} * \text{Debt/Equity Ratio})(i, j) + \\ &\beta_{66} (\text{Informal Inter} - \text{Personal Networks} * \text{R\&D/Sales})(i, j) + \varepsilon(i, j) \end{aligned} \quad (\text{Eq.1e})$$

$$i = \text{year}, j = 1, \dots, 2344$$

In order to interpret the results of a multiple regression analysis, several assumptions need to be stated first. Meeting the assumptions is crucial to ensure that the obtained regression results are truly representative of the sample and to obtain the best results possible. Any serious violations of the assumptions need to be corrected if possible. The assumptions to be examined are: (1) linearity of the model, (2) constant variance of the error term, (3) no serial-or autocorrelation, (4) no multicollinearity, (5) independence of the error term from the independent variables, and (6) normality of the error term distribution (Gujarati & Porter, 2009; Hair et al., 2010).

(1) The first assumption states the linearity of the model measured. Linearity means that the regression model is linear in the parameters, though it may or may not be linear in the variables. For instance, the dependent variable Y and the independent variables X_i may be nonlinear, but as long as the parameters $\beta_1 \dots \beta_i$ are linear, one can proceed with a linear regression model (Gujarati & Porter, 2009). That is the regression model as shown in Eq. 2:

$$Y_{i,j} = \alpha + \beta_1 X_{i,j} + \dots + \beta_i X_{i,j} + \varepsilon_{i,j} \quad (\text{Eq.2})$$

As stated in the regression models (Eq.1a-e), we will proceed with a regression that is linear in the parameters, i.e. $\beta_1 \dots \beta_{66}$ are raised to the first power only.

(2) The second assumption posits the constant variance of the error term. In other words, the variance of the error term (ε_i) is the same regardless of the value of X_i . This assumption is also known as ‘homoscedasticity’. Accordingly, the term ‘heteroscedasticity’ is used if the assumption is violated (Gujarati & Porter, 2009). Assumption 2 is expressed in Eq.3:

$$\text{Var}(\varepsilon_i) = \delta^2 \quad (\text{Eq.3})$$

In order to check for homoscedasticity, we have used a ‘Breusch-Pagan-Godfrey Test’. It tests whether the estimated variance of the error terms from a regression are

dependent on the values of the explanatory variables (Breusch & Pagan, 1979). In case of heteroscedasticity, the regression estimators are inefficient (Hair et al., 2010).

(3) The third assumption postulates that there is no serial-or autocorrelation between the disturbances. Autocorrelation means that there is a correlation between a variable and its lagged value. This is, the value of Y_t is correlated with its value in Y_{t+1} (Stock & Watson, 2012). It can be seen that autocorrelation is a pervasive feature of time series data only. The most celebrated test for detecting autocorrelation is known as the ‘Durbin-Watson d statistic’. The Durbin-Watson test defines a lower and an upper bound as thresholds for which decisions can be made regarding the presence of positive or negative autocorrelation (Gujarati & Porter, 2009). As benchmark, a Durbin-Watson d statistic in the range of 1.5 to 2.5 indicates that there is no autocorrelation issue (Hair, Anderson, Tatham, & Black, 1998).

(4) The fourth assumption posits that there is no multicollinearity amongst the independent variables. Multicollinearity is the extent to which a variable can be explained by the other variables in the regression model. As multicollinearity increases, it becomes more difficult to ascertain the effect of any single variable, because of its interrelationships with the other variables (Hair et al., 2010). In order to determine the absence of multicollinearity, we have examined the variance inflation factor (VIF) of each independent and control variable. The VIF shows how the variance of an estimator is inflated by the presence of multicollinearity. The larger the value of VIF for any given X_i , the higher is its correlation with the other explanatory variables (Gujarati & Porter, 2009). A common cut-off threshold is a VIF value of 10, as suggested by Myers (1990) and Neter, Wasserman and Kutner (1985).

(5) The fifth assumption asserts the independence of the error term from the independent variables. In a regression, it is assumed that each predicted value is independent, meaning that it is not related to any other prediction. In case there is a correlation between the

independent variables and the error term, the model is said to be endogenous (Hair et al., 2010). Endogeneity can arise as a result of three instances: errors-in-variables, omitted variables and simultaneous causality (Bascle, 2008). In brief, errors-in-variables occur when the true value of a regressor X_i is unobserved, typically caused by a measurement error (Bound, Brown, & Mathiowetz, 2001). Further, there is an omitted variable bias in case a variable, which affects the dependent variable Y and is correlated with one or more independent variables X_i , is omitted from the regression (Wooldridge, 2002, 2006). Lastly, simultaneous causality occurs when the causality of the model runs in both directions. For instance in this study, inter-personal networks are predicted to affect internationalisation, but internationalisation could also affect the composition of inter-personal networks. In sum, when different sources of endogeneity affect the regression, it becomes an insoluble task to predict the direction of the regression estimates (Bascle, 2008).

(6) The final assumption presumes the normality of the error term distribution. The confidence intervals and several significance tests for coefficients are all based on the assumption of normally distributed errors. If this assumption is violated, critical values for significance testing may be over- or underestimated, and all resulting statistical tests are therefore invalid (Hair et al., 2010). In order to test the normality assumption, we have used the ‘Jarque-Bera Test of Normality’. The ‘Jarque-Bera Test’ is a large-sample test and computes the skewness and kurtosis measures of the regression residuals. In specific, it evaluates the null hypothesis that the residuals are normally distributed with unspecified mean and variance against the alternative hypothesis that the residuals are not normally distributed (Gujarati & Porter, 2009). This procedure is a well-established practice in the management literature (DiRienzo, Das, Cort, & Burbridge, 2007; Francoeur, Labelle, & Sinclair-Desgagné, 2008).

To sum up, Hypotheses 1 through 6 are tested using the multiple regression technique. The first model includes only the control variables as predictors (Eq.1a). In the second model, we introduce the inter-personal network variables as predictors (Eq.1b). In Model 3, we add the interaction terms between inter-personal networks and being a family firm (Eq.1c). In Model 4, we add the interactions terms between formal inter-personal networks and organisational slack resources to Model 2 (Eq.1d). Lastly in Model 5, we add the interactions terms between informal inter-personal networks and organisational slack to Model 2 (Eq.1e). Each model is assessed individually on the underlying regression assumptions and adjusted in the appropriate ways.

4.7 SUMMARY

This chapter presented the research method employed to answer the research questions in this dissertation. We justified the use of a quantitative longitudinal study design and illustrated the data and sample being used. Further, we operationalized the variables included in this study and highlighted the statistical approaches taken. To perform the statistical analyses, we used Stata 12, Eviews 6, and SPSS 20. In the next chapter, we present the results of this study.

Chapter 5: Findings

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5.1 INTRODUCTION

This chapter presents the results of the quantitative study in this dissertation. The results being presented involve univariate, bivariate and multivariate data analysis. In section 5.2, we present the frequency statistics of the model variables including the correlation matrix. In section 5.3, we follow with the analysis of data regarding the theoretical model. First, we present the linear regression results of the hypothesis testing. Subsequently, we assess the robustness of the obtained results by checking the underlying regression assumptions and by performing alternative regression analyses.

5.2 DESCRIPTIVE STATISTICS

5.2.1 FREQUENCIES OF REGRESSION VARIABLES

Table 5 reports the frequency distributions for the degree of firm internationalisation over the three-year sampling period. The majority of firms were not actively selling goods overseas (1995 – 1996: 71.4%; 1996 – 1997: 72.8%; 1997 – 1998: 72.9%). Around a quarter of the firms (1995 – 1996: 23.3%; 1996 – 1997: 21.9%; 1997 – 1998: 21.9%) were reporting an export share of 1% - 25%. More than 5% of the sampled firms had an export share of 25% and above (1995 – 1996: 5.3%; 1996 – 1997: 5.3%; 1997 – 1998: 5.2%).

Table 5: Distribution of firms by degree of internationalisation

Firm internationalisation (Exports/Total Sales)	1995 - 1996		1996 - 1997		1997 - 1998	
	n	%	n	%	n	%
0%	1674	71.4%	1706	72.8%	1709	72.9%
1% - 25%	546	23.3%	513	21.9%	513	21.9%
26% - 50%	70	3.0%	70	3.0%	70	3.0%
51% - 100%	54	2.3%	54	2.3%	52	2.2%

Table 6 depicts the frequency of the firms' activities with individual network actors. The single most used network actors were external accountants, with 53.2% of respondents seeking business information and advice more than 3 times during the year followed by banks (31.4%) and solicitors (28.9%). Network actors that were never contacted during the year were government and small business agencies (80.2%), local businesses (71.5%), and business consultants (66.7%).

Table 6: Network activities of sampled firms

External accountants	n	%
Never	336	14.3%
1-3 times	760	32.4%
More than 3 times	1248	53.2%
Banks		
Never	723	30.8%
1-3 times	886	37.8%
More than 3 times	735	31.4%
Solicitors		
Never	807	34.4%
1-3 times	859	36.6%
More than 3 times	678	28.9%
Business consultants		
Never	1563	66.7%
1-3 times	486	20.7%
More than 3 times	295	12.6%
Industry association/chamber of commerce		
Never	1152	49.1%
1-3 times	567	24.2%
More than 3 times	625	26.7%
Australian taxation office		
Never	1249	53.3%
1-3 times	808	34.5%
More than 3 times	287	12.2%
Government small business agencies		
Never	1879	80.2%
1-3 times	370	15.8%
More than 3 times	95	4.1%
Family or friends		
Never	1599	68.2%
1-3 times	418	17.8%
More than 3 times	427	18.2%
Others in your industry		
Never	926	39.5%
1-3 times	740	31.6%
More than 3 times	678	28.9%
Local business		
Never	1675	71.5%
1-3 times	426	18.2%
More than 3 times	243	10.4%

Table 7 illustrates the types of businesses contained in the BLS by family firm screening questions, segregating between family and non-family firms. It is apparent that 48.4% of the respondents (n = 1135) considered their business to be a family business. According to the *behavioural dimension* (Chua et al., 1999), we used this question as the first criteria to separate family from non-family firms. In addition, we stratified the firms according to the family equity in the business (*ownership dimension*). Of those firms that considered themselves as a family business, 86.4% (n = 981) were majority family owned. As a third screening question, we asked whether the firms had a family owner in management (*management dimension*). Of those 981 firms that considered themselves as a family business and were majority family owned, 96.02% had a family owner in management. We classified these remaining 942 businesses (40.2%) as family firms, according to the multi-dimensional approach explained earlier.

Table 7: Multi-dimensional family firm classification

(1) Consider the business to be a family business:	n	%		
No	1209	51.6%		
Yes	1135	48.4%		
<i>Of those saying yes (n=1135), how many of these businesses are:</i>			Total sample (n=2344)	
(2) Majority family owned (>50%):	n	%	n	%
No	154	13.6%	707	30.2%
Yes	981	86.4%	1637	69.8%
<i>Of those saying yes <u>and</u> were majority family owned (n=981), how many of these businesses have:</i>			Total sample (n=2344)	
(3) A family owner in management:	n	%	n	%
No	39	3.98%	1262	53.8%
Yes	942	96.02%	1082	46.2%
= Family Firm (1)+(2)+(3)				
No	1402	59.8%		
Yes	942	40.2%		

5.2.2 DATA CHARACTERISTICS

Table 8 includes summary statistics for all the variables used in the analysis. The average internationalisation extent across all three years was 4.08 (SD = 12.69). This may first seem as a relatively low number. However, we have to consider that the sample includes firms from all industries, amongst them, many with a very low international orientation (e.g., accommodation, cafes and restaurants). Further, this result is in the range of other SME internationalisation studies that report a similar internationalisation average (e.g., George, Wiklund, & Zahra, 2005: $M = 6.9$; Manolova et al., 2010: $M = 5.23$). With regard to the slack resource figures, as expected, all three measures have an average value of 0, calculated as the deviation from the industry mean. The formal inter-personal network measure was scaled from 0 – 14. The mean value of this variable is 5.4 (SD = 3.38). Informal inter-personal networks were scaled from 0 – 6 with an average value of 1.82 (SD = 1.77). In addition, this study includes several control variables. It can be seen that the intent to increase production was the most prevalent aspect of the dominant business-level strategy with a mean of 0.42 (SD = 0.49). Further, most firms had regular income/expenditure reports ($M = 0.78$, SD = 0.45) and budget forecasts ($M = 0.64$, SD = 0.48). The most frequent educational level of the decision-maker was a tertiary education. The average number of years of experience for the decision-maker was 9.91 (SD = 11.56) ranging from 0 to 60.

Table 8: Descriptive statistics of all variables

	Variable	Mean	Median	Mode	SD	Min	Max
1.	Internationalisation (%) 1996 – 1998	4.08	0	0	12.69	0	100
1a.	Internationalisation (%) 1996	4.13	0	0	13.34	0	100
1b.	Internationalisation (%) 1997	4.19	0	0	13.59	0	100
1c.	Internationalisation (%) 1998	3.95	0	0	13.16	0	100
2.	Firm size (ln)	2.95	3.09	1.10	1.19	0	5.28
3.	Firm age	7.81	7	16	4.79	1	16
4.	Family firm	0.42	0	0	0.49	0	1
5a.	Available slack	0	-0.91	-0.65	11.76	-9.12	434
5b.	Potential slack	0	-4.55	-18.66	117	-29	4208
5c.	Recoverable slack	0	0	0	0.05	-0.03	1.25
6a.	Increase production	0.42	0	0	0.49	0	1
6b.	Open new locations	0.15	0	0	0.35	0	1
6c.	Introduce new products	0.38	0	0	0.49	0	1
7a.	Business plan	0.40	0	0	0.49	0	1
7b.	Budget forecasting	0.64	1	1	0.48	0	1
7c.	Income/expenditure reports	0.78	1	1	0.42	0	1
7d.	Comparison other businesses	0.28	0	0	0.45	0	1
8.	Education	2.08	2	3	0.88	1	3
9.	Experience	9.84	6	0	11.36	0	60
10.	Formal inter-personal networks	5.40	5	4	3.38	0	14
11.	Informal inter-personal networks	1.82	2	0	1.77	0	6

5.2.3 CORRELATION MATRIX

Table 9 displays the correlation coefficients for all observed variables in this study. The dependent variable ‘firm internationalisation’ is positively correlated to formal inter-personal networks ($r = 0.11$, $p < 0.01$), but shows no significant correlation to informal inter-personal networks. Being a family firm is negatively correlated ($r = -0.11$, $p < 0.01$) while possessing recoverable slack is positively correlated to firm internationalisation. Available and potential slack are not correlated with the dependent variable. Firm internationalisation

has its highest correlation with the intention to introduce new products ($r = 0.80$, $p < 0.01$) and firm size ($r = 0.12$, $p < 0.01$). The highest inter-correlations among the independent variables exist between formal inter-personal networks and the strategic planning system variables (income/expenditure reports, $r = 0.48$, $p < 0.01$; budget forecasting, $r = 0.45$, $p < 0.01$; business plan, $r = 0.38$, $p < 0.01$). Further, formal inter-personal networks are positively correlated to firm size ($r = 0.43$, $p < 0.01$) and the strategic planning system variables are highly correlated to each other. Examining the VIFs of these variables regarding multicollinearity is discussed in greater detail in the analysis section.

Table 9: Correlation matrix

Variable	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	7c	7d	8	9	10
1. Internationalisation (%) 1996 – 1998																	
2. Firm size (ln)	0.12																
3. Firm age	0.04	0.21															
4. Family firm	-0.11	-0.17	0.11														
5a. Available slack	-0.01	-0.02	0.04	0.01													
5b. Potential slack	-0.02	0.01	0.03	-0.02	-0.01												
5c. Recoverable slack	0.11	0.02	-0.03	-0.01	0.04	-0.01											
6a. Increase production	0.07	0.11	-0.04	-0.02	0.01	0.01	0.07										
6b. Open new locations	-0.01	0.14	-0.06	-0.04	-0.02	-0.01	-0.01	0.19									
6c. Introduce new products	0.80	0.15	0.03	-0.01	0.01	-0.01	0.10	0.38	0.20								
7a. Business plan	0.14	0.31	0.03	-0.14	-0.02	-0.02	0.04	0.20	0.13	0.24							
7b. Budget forecasting	0.12	0.35	0.04	-0.11	0.01	0.01	0.05	0.21	0.14	0.27	0.47						
7c. Income/expenditure reports	0.06	0.33	0.04	-0.04	-0.01	-0.01	0.04	0.22	0.13	0.25	0.35	0.57					
7d. Comparison other businesses	0.01	0.24	0.02	-0.08	-0.01	-0.01	0.03	0.11	0.10	0.14	0.26	0.31	0.26				
8. Education	0.13	0.12	-0.03	-0.17	-0.02	-0.04	0.07	0.04	-0.01	0.07	0.16	0.12	0.09	0.02			
9. Experience	-0.01	0.04	0.22	0.15	0.07	0.01	-0.02	-0.04	-0.03	0.02	-0.05	0.01	0.01	-0.02	-0.12		
10. Formal inter-personal networks	0.11	0.43	0.12	-0.02	-0.01	-0.02	0.07	0.23	0.20	0.28	0.38	0.45	0.48	0.27	0.04	0.01	
11. Informal inter-personal networks	-0.01	0.16	0.02	0.07	0.05	-0.01	0.02	0.15	0.12	0.21	0.18	0.26	0.28	0.29	-0.01	0.01	0.51

Note: Correlations with absolute values of 0.05 or above are statistically significant at $p < 0.05$.

5.3 MULTIVARIATE ANALYSIS

We used multiple linear regression analysis in order to answer the research questions. First, we conducted an exploratory factor analysis to gather information about the interrelationships of the inter-personal network items. Second, to test the hypothesised relationships, we estimated separate statistical regression models. In the first section, we examine the main effect of formal and informal inter-personal networks on SME internationalisation (Hypothesis 1&2). In the second section, we test the moderating effect of being a family firm on the above stated relationship (Hypothesis 3 & 4). Subsequently, we examine slack resources as a moderator on the main relationship (Hypothesis 5 & 6).

5.3.1 FACTOR ANALYSIS

To explore the interrelationships among our inter-personal network items and assess the distinguishability of the measured inter-personal network construct, we conducted an exploratory factor analysis. First, we tested whether our data was suitable for a factor analysis. The ‘Kaiser-Meyer-Olkin Measure of Sampling Adequacy’ was 0.86 and the ‘Barlett’s Test of Sphericity’ was significant ($p = 0.000$), therefore factor analysis is appropriate (Pallant, 2007). Second, we used an oblimin rotation to produce a two-factor solution. Table 10 shows all ten measured inter-personal network items and their factor loadings. The three informal inter-personal network items loaded heavily on a single factor. The seven formal inter-personal network items also loaded heavily on a single factor. None of the items produced meaningful off-loadings (< 0.40). In addition, both components produced an adequate reliability ($\alpha \geq .70$) (Hair et al., 2010; Nunnally, 1978). Consequently,

the results of the exploratory factor analysis support our theoretical argumentation and provide evidence that the measure captured two distinct dimensions (formal versus informal) of inter-personal networks.

Table 10: Exploratory factor analysis of inter-personal network items with oblimin rotation (pattern matrix)

Items	Component 1	Component 2
	<i>Formal Inter-Personal Networks</i>	<i>Informal Inter-Personal Networks</i>
External Accountants	0.41	
Banks	0.55	
Solicitors	0.72	
Business consultants	0.65	
Family or friends		0.83
Others in your industry		0.70
Local business		0.71
Industry association/Chamber of commerce	0.64	
The Australian Taxation Office	0.71	
Government small business agencies	0.62	

5.3.2 HYPOTHESIS 1 & 2

First, we ran the base control model only including the control variables. For the sake of clarity, we excluded industries from presentation since industry is not focus of this study. The regression results for the industries can be found in Appendix F. Most manufacturing sub-industries were positively and significantly associated with internationalisation. Industries that showed a negative significant relationship were general construction ($p < 0.1$), accommodation, cafes and restaurants (between 100 & 200 employees) ($p < 0.1$), cultural and recreational services (between 100 & 200 employees) ($p < 0.01$), and motion picture, radio and television services ($p < 0.1$). Furthermore, the family firm variable was negatively associated with internationalisation ($p < 0.01$), while recoverable slack was positively related

($p < 0.01$). Both, having a formal business plan ($p < 0.05$) and engage in budget forecasting ($p < 0.05$) increased the likelihood of greater internationalisation. Lastly, the decision-maker's educational level positively impacted firm internationalisation ($p < 0.05$). We then added the two inter-personal network variables into regression model 1. As suggested in Hypothesis 1, the results of regression model 1 indicate that formal inter-personal networks have a positive significant impact on firm internationalisation ($p < 0.01$). Hence, Hypothesis 1 is supported. Likewise and in line with our prediction, informal inter-personal networks have a significant negative relationship with firm internationalisation ($p < 0.05$). Thus, Hypothesis 2 is also supported. Overall, regression model 1 explains 11.5% of the variance in firm internationalisation. This value is in the similar range of other network - internationalisation studies (Manolova et al., 2010; Musteen et al., 2010). By adding the inter-personal network variables, there was an increase in the variance explained (incremental $R^2 = 0.006$), and the incremental F value was significant at the $p < 0.01$ level. The results are shown in Table 11. To examine whether the observed relationships are meaningful, we followed Hair et al.'s (2010) recommendation and conducted a power analysis. We found that our sample size was within the recommended range of the effect size (power level of at least 0.80) with a moderate significant level of $p < 0.05$. Therefore, the statistical power analysis indicates that the variables under consideration deliver meaningful results.

Table 11: SME internationalisation (1995/1996 – 1997/1998) as a function of formal and informal inter-personal networks (OLS, n = 2344; coefficients are unstandardised and robust standard errors are in parentheses)

Predictor	Control model		Regression model 1	
Intercept	-1.004	(1.253)	-0.585	(1.327)
Firm size (ln)	0.111	(0.385)	-0.156	(0.399)
Firm age	0.038	(0.075)	0.023	(0.074)
Family firm	-1.911	(0.625)***	-1.961	(0.632)***
Available slack	-0.008	(0.007)	-0.006	(0.007)
Potential slack	-0.002	(0.001)	-0.001	(0.001)
Recoverable slack	20.793	(6.700)***	19.339	(6.632)***
Increase production	0.452	(0.704)	0.355	(0.701)
Open new locations	-0.534	(0.777)	-0.748	(0.807)
Introduce new products	0.305	(0.734)	0.353	(0.717)
Business plan	1.871	(0.837)**	1.614	(0.824)*
Budget forecasting	1.900	(0.743)**	1.658	(0.726)**
Income/expenditure reports	-1.270	(0.924)	-1.800	(0.994)*
Comparison other businesses	-0.333	(0.811)	-0.208	(0.820)
Education	0.934	(0.391)**	0.969	(0.393)**
Experience	-0.011	(0.032)	-0.011	(0.031)
Formal inter-personal networks			0.410	(0.154)***
Informal inter-personal networks			-0.482	(0.210)**
R ²	0.109		0.115	
Δ R ²			0.006	
F	3.629***		3.711***	
Δ F			5.166***	

* p<0.1; ** p<0.05; *** p<0.01

We further conducted a supplemental analysis to decompose the inter-personal network effect; the results are reported in Table 12. Instead of adding the overall formal and informal inter-personal network variables as seen in regression model 1, for regression model 1a, we included each inter-personal network actor separately. The results show business consultants ($p < 0.05$) and the Australian taxation office ($p < 0.1$) as the driving actors responsible for the positive impact of formal inter-personal networks on firm internationalisation. The negative effect of informal inter-personal networks can be mainly

ascribed to other people in the firms' industry ($p < 0.01$). Importantly and in line with our hypotheses, all three informal inter-personal network actors (family/friends, others in your industry, local business) have a negative coefficient, while five of the seven formal inter-personal network actors have a positive coefficient.

Table 12: SME internationalisation (1995/1996 – 1997/1998) as a function of individual network actors (OLS, $n = 2344$; coefficients are unstandardised and robust standard errors are in parentheses)

Predictor	Regression model 1a	
Intercept	0.213	(1.465)
Firm size (ln)	0.035	(0.075)
...		
External accountants	-0.473	(0.595)
Banks	0.502	(0.589)
Solicitors	0.701	(0.517)
Business consultants	1.235	(0.587)**
Family/friends	-0.052	(0.428)
Others in your industry	-1.198	(0.462)***
Local business	-0.149	(0.534)
Industry association/chamber of commerce	-0.510	(0.456)
Australian taxation office	1.056	(0.613)*
Government small business agencies	0.502	(0.755)
R ²	0.122	
ΔR^2 (M2a over M1)	0.013	
F	3.629***	
ΔF (M2a over M1)	2.210**	

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

To further test the robustness of these results, we analysed the network effect for all three consecutive years separately. Table 13 reports these results. It is apparent that the positive effect arising from formal inter-personal networks is positive and significant for each year (1995/1996, $p < 0.05$; 1996/1997, $p < 0.05$; 1997/1998, $p < 0.01$). Similarly, the negative

effect from informal inter-personal networks is also significant in each of the three years (1995/1996, $p < 0.05$; 1996/1997, $p < 0.1$; 1997/1998, $p < 0.1$). This result increases the confidence in our findings and demonstrates that both effects are consistent over a longer period.

Table 13: SME internationalisation (1995/1996, 1996/1997, 1997/1998) as a function of formal and informal inter-personal networks (OLS, n = 2344; coefficients are unstandardised and robust standard errors are in parentheses)

Predictor	Internationalisation 1995/1996		Internationalisation 1996/1997		Internationalisation 1997/1998	
Intercept	-1.520	(1.226)	-1.191	(1.327)	-0.004	(1.812)
Firm size (ln)	-0.184	(0.430)	-0.230	(0.395)	-0.125	(0.386)
...						
Formal inter-personal networks	0.406	(0.171)**	0.396	(0.165)**	0.458	(0.131)***
Informal inter-personal networks	-0.550	(0.234)**	-0.381	(0.220)*	-0.408	(0.214)*
R ²	0.109		0.114		0.115	
Δ R ² (over M1)	0		0.005		0.006	
F	3.447***		3.704***		3.233***	
Δ F (over M1)	4.626**		3.648**		5.414***	

* p<0.1; ** p<0.05; *** p<0.01

5.3.3 ASSUMPTION TESTING REGRESSION MODEL 1

As outlined in chapter 4, several assumptions need to be met in order to correctly interpret the results of the regression analysis. To test for *homoscedasticity*, we calculated the Breusch-Pagan-Godfrey Test. The Breusch-Pagan chi square statistics suggested the presence of heteroscedasticity (chi square = 689.87, $p = 0.000$). We addressed this problem by re-estimating the standard errors using White's heteroscedasticity-consistent correction. This procedure is recommended in the econometric literature (e.g., Gujarati & Porter, 2009; Wallace & Silver, 1988) and has been widely used in prior studies (e.g., Qian, Cao, & Takeuchi, 2012; Uotila, Maula, Keil, & Zahra, 2009). For the sake of clarity, all regression models in this chapter have already been reported with White corrected robust standard errors. Durbin-Watson statistics were calculated to assess the extent of potential *autocorrelation* problems. The Durbin-Watson d statistic did not indicate an autocorrelation problem ($d = 2.088$) and hence this assumption was met. Next, we used VIFs to assess *multicollinearity* among the independent variables. The computed VIFs are provided in Table 14. VIF scores ranged between 1.01 and 2.02, indicating that multicollinearity is not a concern and will not significantly influence the stability of the parameter estimates (Dielman, 1991).

Table 14: Variance inflation factors for independent variables in regression model 1

Predictor	VIF
Firm size (ln)	1.83
Firm age	1.24
Family firm	1.15
Available slack	1.04
Potential slack	1.01
Recoverable slack	1.03
Increase production	1.30
Open new locations	1.15
Introduce new products	1.36
Business plan	1.42
Budget forecasting	1.83
Income/expenditure reports	1.71
Comparison other businesses	1.30
Education	1.14
Experience	1.19
Formal inter-personal networks	2.02
Informal inter-personal networks	1.49

To address concerns about potential *endogeneity* of the network measure and other firm-level unobserved heterogeneity, we can argue that we estimated the regression using lagged-structure regression models by regressing internationalisation in year (t, t+1, and t+2) / 3 on firm strategy and inter-personal networks in year t. Thereby, we excluded simultaneous causality as a source of endogeneity (Elango & Pattnaik, 2007; Grant, 1987). Furthermore, we checked all explanatory variables that were available for consecutive years for endogeneity using the Wu-Hausman test, as recommended in the econometric literature (Greene, 2003; Hausman, 1978; Wu, 1973). Specifically, we replaced firm size, firm age, dominant-business level strategy, and strategic planning systems with lagged values as instruments. Wu-Hausman tests did not indicate an endogeneity concern for those variables (none significant at $p < 0.1$). This use of lagged variables and specification testing using Wu-Hausman is a common approach to mitigate potential endogeneity and consistent with recent

research published in international management (Filatotchev & Piesse, 2009). It is important to mention that an estimator that uses lags as instruments loses its consistency if the errors are serially correlated (Arellano & Bond, 1991). The Durbin-Watson statistics indicated a maximum test score of 1.99 implying no serial correlation.

As with all extant research, we cannot observe whether managers intentionally build up networks in order to internationalise; hence, we may have omitted variables in the regression model that affect networking and internationalisation. We cannot definitely state whether SME managers first choose to export and then find network partners or whether they export because of their existing network partners. Nevertheless, we can refer to a recently published study by Ellis (2011) that faces the same problem in regards to networks and international market choice. In this study, 87% of firms identified network partners before markets. In doing so, 42% of the sampled firms internationalised based on unsolicited orders from customers or intermediaries. By definition, any unsolicited order is the case of identifying partners before markets (Ellis, 2011). A further 45% internationalised based on first-time meetings that took place at trade exhibitions. SMEs that internationalise through contacts at trade exhibitions react to opportunities that arise by meeting new people and often had no prior intention to internationalise (Kontinen & Ojala, 2011b). Thus, internationalisation based on trade exhibitions also incorporates establishing networks first, before the intention to internationalise arises. These observations lead to the conclusion that networks are established first, which then lead to international opportunity exploitation. This is in line with extant entrepreneurship research that showed that most opportunities are being discovered instead of actively searched (Ardichvili, Cardozo, & Ray, 2003; Koller, 1988). Finally, the use of 16 firm-specific controls plus industry associations in all regression models reduces potential omitted variable bias, which if uncontrolled, can result in potential endogeneity.

The final assumption postulates the *normality of the error term* distribution. The Jarque-Bera normality test indicated rejection of the null hypothesis that residuals are normally distributed ($JB = 34699.71$, $p = 0.000$). Therefore, we have used the following procedure. First, we have removed the outliers in the sample. Sometimes the presence of few large outliers can skew the error distribution. Because the regression parameters are estimated based on the minimization of squared errors, a few extreme observations may exert a disproportionate influence on parameter estimates (Kleinbaum, Kupper, Muller, & Nizam, 2008). To detect outliers we calculated the Mahalanobis distances. This procedure measures each observation's distance from the mean centre of all observations, providing a single value for each observation. High values represent data points farther removed from the general distribution of all observations (Hair et al., 2010). This method has been widely used in order to solve problems related to outliers (Rousseeuw & Leroy, 2003). Examination of the Mahalanobis distance of data points indicated that 51 observations were significantly different from the mean value of similar measures. Maximum Mahalanobis distance in the sample was 59.1. Critical value for regression with two independent variables is 13.82 (Tabachnick & Fidell, 2007). Thus, we removed all observations with Mahalanobis distance greater than 13.82. We then re-estimated regression model 1 with the outlier removed sample (Appendix G). Compared to the full database sample, the direction and significance of the independent network variables did not change. Hence, the inclusion of outliers does not negatively impact the regression model's predictive ability. However, in regards to the distribution of the error term, the Jarque-Bera test still indicates non-normal distributed errors ($JB = 14339.95$, $p = 0.000$).

Second, in case the errors were still not normally distributed, we employed a bootstrapping technique. The basic idea of bootstrapping is to regurgitate a given sample multiple times and then obtain the sampling distributions of the parameters of interest

(Gujarati & Porter, 2009). This approach does not rely on statistical assumptions to evaluate statistical significance, but instead bases its assessment only on the sample data (Hair et al., 2010). This procedure is also in line with previous studies (e.g., Cooper, Gimeno-Gascon, & Woo, 1994; Sarkar, Echambadi, & Harrison, 2001). The bootstrapped regression results based on 1000 bootstrapping runs are shown in Appendix H. The direction and significance of the two inter-personal network variables did not change in comparison to the non-bootstrapped regression. Still, formal inter-personal networks have a positive impact on firm internationalisation ($p < 0.05$), while informal inter-personal networks negatively ($p < 0.05$) influence firm internationalisation. Thus, we can state that the initial results obtained from regression model 1 are robust across all underlying regression assumptions.

5.3.4 HYPOTHESIS 3 & 4

In order to test Hypothesis 3 and Hypothesis 4, we added the interaction term of formal inter-personal networks and family firm as well as informal inter-personal networks and family firm to regression model 2. The moderating effect of family firm on the formal inter-personal network – internationalisation relationship was not supported. Nevertheless, regression model 2 supports the notion that being a family firm weakens the negative relationship between informal inter-personal networks and firm internationalisation ($p < 0.05$), as suggested by Hypothesis 4. The results are shown in Table 15.

Table 15: SME internationalisation (1995/1996 – 1997/1998) as a function of formal and informal inter-personal networks (OLS, n = 2344; coefficients are unstandardised and robust standard errors are in parentheses)

Predictor	Regression model 2	
Intercept	-0.379	(1.339)
Firm size (ln)	-0.191	(0.392)
Firm age	0.023	(0.074)
Family firm	-2.515	(1.086)**
Available slack	-0.005	(0.007)
Potential slack	-0.001	(0.001)
Recoverable slack	19.021	(6.707)***
Increase production	0.420	(0.700)
Open new locations	-0.798	(0.815)
Introduce new products	0.304	(0.719)
Business plan	1.518	(0.822)*
Budget forecasting	1.688	(0.730)**
Income/expenditure reports	-1.776	(0.987)*
Comparison other businesses	-0.247	(0.819)
Education	0.931	(0.391)**
Experience	-0.009	(0.031)
Formal inter-personal networks	0.531	(0.214)**
Informal inter-personal networks	-0.964	(0.359)***
Formal inter-personal networks x family firm	-0.255	(0.246)
Informal inter-personal networks x family firm	1.003	(0.417)**
R ²	0.119	
Δ R ² (M3 over M2)	0.010	
F	3.691***	
Δ F (M3 over M2)	2.902*	

* p<0.1; ** p<0.05; *** p<0.01

Intrigued by the lack of support for Hypothesis 3, we conducted a split-sample analysis, and report the results in Table 16. Based on the original definition, we regarded firms as family firms only if they fulfilled the criteria of (1) considered themselves family firms, (2) were majority family owned (>50%), and (3) had a family owner in management. While this rigid approach prevents the dilution of the family firm term (i.e., several other studies use only one criterion to define family firms), and distil its influence on the dependent

variable, it may create problems when analysing its moderating role. For example, is it appropriate to consider firms that fulfil only one or two of these criteria as non-family firms? These firms may indeed show some family firm characteristics; however, in the current analysis they are regarded as non-family firms. Consequently, for this supplemental analysis, we only used firms that fulfilled all three criteria (family firms) and firms that did not meet any of the three criteria (non-family firms). This allowed making a clear distinction between family and non-family firms. As a result, the usable sample size shrank by 827 respondents to $n = 1517$. By repeating the previous analysis with the stratified sample, regression model 2a shows that the family firm variable still has a significant positive moderating impact on the informal inter-personal network – internationalisation relationship ($p < 0.1$). Hence, Hypothesis 4 is still supported. Importantly, however, being a family firm now has a negative significant moderating role on the formal inter-personal network – internationalisation relationship ($p < 0.1$), as suggested by Hypothesis 3.

Table 16: SME internationalisation (1995/1996 – 1997/1998) as a function of formal and informal inter-personal networks (OLS, n = 1517; coefficients are unstandardised and robust standard errors are in parentheses)

Predictor	Regression model 2a	
Intercept	0.507	(2.450)
Firm size (ln)	-0.590	(0.430)
Firm age	-0.004	(0.087)
Family firm	-2.708	(2.012)
Available slack	-0.016	(0.019)
Potential slack	-0.004	(0.003)
Recoverable slack	16.544	(7.199)**
Increase production	0.470	(0.906)
Open new locations	-1.559	(1.016)
Introduce new products	-0.514	(0.965)
Business plan	1.571	(1.037)
Budget forecasting	1.484	(0.929)
Income/expenditure reports	-2.212	(1.346)*
Comparison other businesses	-0.147	(1.049)
Education	0.812	(0.502)*
Experience	0.012	(0.039)
Formal inter-personal networks	1.039	(0.371)***
Informal inter-personal networks	-1.266	(0.692)*
Formal inter-personal networks x family firm	-0.656	(0.397)*
Informal inter-personal networks x family firm	1.354	(0.738)*
R ²	0.161	
Δ R ² (M3a over M2)	0.046	
F	4.013	
Δ F (M3a over M2)	3.352**	

* p<0.1; ** p<0.05; *** p<0.01

5.3.5 ASSUMPTION TESTING REGRESSION MODEL 2A

As with the previous model, we need to test regression model 2a regarding the underlying regression assumptions. The Breusch-Pagan chi square statistics indicated the presence of heteroscedasticity (chi square = 657.76, p = 0.000). Hence, we calculated the

regression with White corrected robust standard errors. The Durbin-Watson d statistic was 1.96, showing no sign of autocorrelation. By adding interaction terms into regression model 2a, the VIF increased considerably to a maximum of 7.08 and 7.92. Table 17 shows the computed VIF. While multicollinearity does exist, VIF scores of less than 10 still suggest an acceptable stability of the parameter estimates (Dielman, 1991).

Table 17: Variance inflation factors for independent variables in regression model 2a

Predictor	VIF
Firm size (ln)	2.12
Firm age	1.21
Family firm	5.13
Available slack	1.03
Potential slack	1.02
Recoverable slack	1.05
Increase production	1.31
Open new locations	1.16
Introduce new products	1.35
Business plan	1.50
Budget forecasting	1.76
Income/expenditure reports	1.56
Comparison other businesses	1.33
Education	1.20
Experience	1.18
Formal inter-personal networks	4.21
Informal inter-personal networks	5.24
Formal inter-personal networks x family firm	7.92
Informal inter-personal networks x family firm	7.08

Endogeneity concerns have been addressed in the same way as in regression model 1. The Jarque-Bera normality test indicated non-normal distributed errors (JB = 29570.77, $p = 0.000$). First, we removed the outliers. Excluding observations based on Mahalanobis distance suggested to remove 27 respondents. Maximum Mahalanobis distance in the sample was 50.3. Critical value for regression with four independent variables is 18.47 (Tabachnick

& Fidell, 2007). Thus, we removed all observations with Mahalanobis distance greater than 18.47. The Jarque-Bera statistics still indicated that the errors were not normally distributed ($JB = 17012.90$, $p = 0.000$). Consequently, we bootstrapped the regression on the basis of 1000 bootstrapping runs. The bootstrapped regression results can be seen in Appendix I. The results obtained in regression model 2a are robust in the bootstrapped regression. The interaction term of formal inter-personal networks and internationalisation is negative and significant ($p < 0.1$), while the interaction term of informal inter-personal networks and internationalisation is positive and significant ($p < 0.1$).

5.3.6 HYPOTHESIS 5 & 6

To test Hypothesis 5, we added the linear interaction term of formal inter-personal networks with (a) available slack, (b) potential slack, and (c) recoverable slack as well as the interaction term of formal inter-personal networks and the squared slack resources variables to regression model 3a. In order to test for nonlinearity, we included the squared terms of the slack variables as controls into the regression. This procedure conforms to the study of Richard, Barnett, Dwyer and Chadwick (2004). To display a curvilinear relationship, as suggested in Hypothesis 5, we expect the regression coefficient of the interaction term to be positive in the linear regression model and negative in the quadratic regression model. Table 18 shows that all interaction terms between formal networks and slack resources are non-significant. Formal inter-personal networks x potential slack squared is significant at $p < 0.05$, however due to the minimal β coefficient, not of practical relevance. To test Hypothesis 6, we added the liner interaction terms of informal inter-personal networks and the three slack variables. To mitigate multicollinearity problems, these calculations were done in a separate regression (regression model 3b). Table 19 depicts that all interaction terms are non-

significant. Hence, we have to reject both, Hypothesis 5 and Hypothesis 6. However, an increasing number of interaction terms and squared variables may create multicollinearity problems, because they highly correlate with the main effect (Waldman, Ramirez, House, & Puranam, 2001). Consequently, the ability to demonstrate a significant effect decreases drastically, due to the increased standard error in the estimators (Hair et al., 2010). Multicollinearity diagnostic in the next section will deal with this problem.

Table 18: SME internationalisation (1995/1996 – 1997/1998) as a function of formal and informal inter-personal networks plus interaction terms with slack resources (OLS, n = 2344; coefficients are unstandardised and robust standard errors are in parentheses)

Predictor	Regression model 3a		Regression model 3b	
Intercept	-0.487	(1.332)	-0.518	(1.342)
Firm size (ln)	-0.105	(0.400)	-0.134	(0.401)
Firm age	0.021	(0.074)	0.022	(0.073)
Family firm	-2.048	(0.626)***	-1.940	(0.633)
Available slack	0.070	(0.119)	0.062	(0.078)
Available slack squared	-0.001	(0.001)		
Potential slack	-0.010	(0.008)	-0.001	(0.001)
Potential slack squared	3.31E-06	(2.47E-06)		
Recoverable slack	43.189	(57.881)	29.964	(12.442)
Recoverable slack squared	-57.102	(89.379)		
Increase production	0.295	(0.702)	0.337	(0.702)
Open new locations	-0.806	(0.799)	-0.770	(0.812)
Introduce new products	0.226	(0.716)	0.327	(0.713)
Business plan	1.507	(0.823)*	1.622	(0.825)
Budget forecasting	1.654	(0.727)**	1.675	(0.727)
Income/expenditure reports	-1.605	(0.944)*	-1.835	(0.992)
Comparison other businesses	-0.326	(0.826)	-0.158	(0.821)
Education	0.914	(0.398)**	0.963	(0.393)
Experience	-0.012	(0.031)	-0.010	(0.031)
Formal inter-personal networks	0.370	(0.154)**	0.409	(0.154)
Informal inter-personal networks	-0.484	(0.210)**	-0.485	(0.210)
Hypothesis 5:				
Formal inter-personal networks x available slack	-0.014	(0.018)		
Formal inter-personal networks x available slack squared	6.51E-05	(0.001)		

Predictor	Regression model 3a		Regression model 3b	
Formal inter-personal networks x potential slack	-0.002	(0.002)		
Formal inter-personal networks x potential slack squared	7.35E-06	(3.41E-06)**		
Formal inter-personal networks x recoverable slack	2.423	(7.562)		
Formal inter-personal networks x recoverable slack squared	0.233	(9.897)		
Hypothesis 6:				
Informal inter-personal networks x available slack			-0.018	(0.021)
Informal inter-personal networks x potential slack			-0.001	(0.001)
Informal inter-personal networks x recoverable slack			-4.880	(4.775)
R ²	0.123		0.116	
Δ R ² (M4a; M4b over M2)	0.008		0.001	
F	3.379***		3.535***	
Δ F (M4; M4b over M2)	1.475		0.649	

* p<0.1; ** p<0.05; *** p<0.01

5.3.7 ASSUMPTION TESTING REGRESSION MODEL 3A AND 3B

As with the previous regression models, the Breusch-Pagan chi square statistics indicated the presence of heteroscedasticity (chi square = 778.33, p = 0.000). Thus, we ran the regression with White corrected robust standard errors. The Durbin-Watson *d* statistic had a value of 2.08, showing no sign of autocorrelation. Table 19 displays the VIF for variables included in regression model 3a and 3b. As expected, the interaction terms are highly correlated with the main effects, causing severe multicollinearity problems. In order to mitigate multicollinearity, Aguinis (1995) suggested to ‘mean centre’ the predictor variables. In this approach, the researcher subtracts the mean score from each value and uses the centred variables in the regression model. Mean centring produces a variable with a mean of 0 but does not change the standard deviation (Wier, Stone, & Hunton, 2005). However in this

study, we have already ‘mean-centred’ the slack variables according to the industry average, and multicollinearity still exists. Marquardt and Snee (1975) and Marquardt (1980) showed that centering prior to computing moderated or polynomial regressions removes nonessential ill conditioning, but for complex regressions, involving many terms, substantial multicollinearity may even exist after centering.

Table 19: Variance inflation factors for independent variables in regression model 3

Predictor	VIF
Firm size (ln)	1.86
Firm age	1.26
Family firm	1.17
Available slack	12.77
Available slack squared	17.76
Potential slack	39.17
Potential slack squared	46.37
Recoverable slack	28.42
Recoverable slack squared	42.10
Increase production	1.32
Open new locations	1.15
Introduce new products	1.38
Business plan	1.43
Budget forecasting	1.84
Income/expenditure reports	1.73
Comparison other businesses	1.32
Education	1.15
Experience	1.19
Formal inter-personal networks	2.19
Informal inter-personal networks	1.51
Formal inter-personal networks x available slack	17.37
Formal inter-personal networks x available slack squared	22.07
Formal inter-personal networks x potential slack	44.84
Formal inter-personal networks x potential slack squared	49.78
Formal inter-personal networks x recoverable slack	36.66
Formal inter-personal networks x recoverable slack squared	45.86
Informal inter-personal networks x available slack	8.00
Informal inter-personal networks x potential slack	6.33
Informal inter-personal networks x recoverable slack	7.92

Using the work of Dunlap and Kemery (1987), to reduce multicollinearity and facilitate interpretation, we have transformed the predictor variables to standard scores prior to forming the interaction term. As a consequence, information regarding moderating effects is not lost, but simply made more independent of the main effects of predictor variables (Marquardt, 1980; Marquardt & Snee, 1975). This transformation leads to unchanged inter-correlations among the original variables, whereas the correlations involving interaction and polynomial terms are reduced dramatically (Dunlap & Kemery, 1987). After transforming predictors into standardised values, all VIF are below the threshold of 10 (see Appendix J). Table 20 shows the re-calculated regression model using standardised predictors. Now, we can detect a curvilinear relationship, as predicted in Hypothesis 5c. The linear interaction term of formal inter-personal networks and recoverable slack is significant and positive ($p < 0.05$), while the interaction term between formal inter-personal networks and recoverable slack squared is significant and negative ($p < 0.05$). The moderating effect between available and potential slack resources remains non-significant. Therefore, Hypothesis 5c is supported: The positive relationship between formal inter-personal networking and SME internationalisation will first increase and then decrease with increases in recoverable organisational slack. Further, we have to reject Hypothesis 6, since adding the interaction terms between informal inter-personal networks and slack resources did not yield a significant improvement of the model fit. The incremental F value (regression Model 3d over regression model 2) is non-significant ($\Delta F = 1.693$). Furthermore, the Jarque-Bera normality test showed non-normal distributed errors (regression model 3c: $JB = 286.46$, $p = 0.000$; regression model 3d: $JB = 275.66$, $p = 0.000$). First, we removed the outliers. Excluding observations based on Mahalanobis distance suggested removing 49 respondents. Maximum Mahalanobis distance in the sample was 56.9. Critical value for regression with six independent variables is 22.46 (Tabachnick & Fidell, 2007). Thus, we removed all

observations with Mahalanobis distance greater than 22.46. The Jarque-Bera statistics still indicated that the errors were not normally distributed (regression model 3c: $JB = 340.12$, $p = 0.000$; regression model 3d: $JB = 332.59$, $p = 0.000$). Then, we bootstrapped the regression based on 1000 bootstrapping runs. The bootstrapped regression results confirmed the initial findings (see Appendix K).

Table 20: SME internationalisation (1995/1996 – 1997/1998) as a function of formal and informal inter-personal networks plus interaction terms with slack resources (OLS, n = 2344; coefficients are standardised and robust standard errors are in parentheses)

Predictor	Regression model 3c		Regression model 3d	
Intercept	4.262	(0.390)***	4.267	(0.371)***
Firm size (ln)	-0.164	(0.437)	-0.118	(0.438)
...				
Formal inter-personal networks	1.324	(0.468)***	1.376	(0.452)***
Informal inter-personal networks	-0.820	(0.379)**	-0.830	(0.381)**
<i>Hypothesis 5:</i>				
Formal inter-personal networks x available slack	-0.645	(0.637)		
Formal inter-personal networks x available slack squared	0.070	(0.059)		
Formal inter-personal networks x potential slack	0.134	(0.917)		
Formal inter-personal networks x potential slack squared	-0.008	(0.076)		
Formal inter-personal networks x recoverable slack	1.722	(0.743)**		
Formal inter-personal networks x recoverable slack squared	-0.147	(0.063)**		
<i>Hypothesis 6:</i>				
Informal inter-personal networks x available slack			-0.154	(0.275)
Informal inter-personal networks x potential slack			0.210	(0.237)
Informal inter-personal networks x recoverable slack			-0.759	(0.387)*
R ²	0.133		0.118	
Δ R ² (M4c; M4d over M2)	0.018		0.003	
F	3.650***		3.580***	
Δ F (M4c; M4d over M2)	3.159***		1.693	

* p<0.1; ** p<0.05; *** p<0.01

5.4 SUMMARY

The purpose of this chapter was to report the data analysis and results in order to address the research questions. The chapter commenced by presenting the descriptive results of the variables involved in this study. The means, medians, modes, standard deviations and correlations for all variables were then presented. Next, the chapter portrayed results relating to the hypothesis testing. A summary of the obtained results is found in Table 21. Formal inter-personal networks have a positive effect, while informal inter-personal networks have a negative effect on firm internationalisation. The positive relationship between formal inter-personal networks and firm internationalisation is weaker if the SME is a family firm. On the other hand, being a family firm weakens the negative impact of informal inter-personal networks on firm internationalisation. Lastly, the positive relationship between formal inter-personal networking and firm internationalisation first increases and then decreases with increases in recoverable organisational slack. There was no support for the moderating role of organisational slack on the informal inter-personal network – internationalisation relationship. The results obtained from this study will be further discussed in the following chapter.

Table 21: Summary of hypotheses testing

Research Question	Hypotheses	Results
<i>Research Question 1:</i> How do SME managers' formal inter-personal networks affect SME internationalisation?	Hypothesis 1: SME managers' formal inter-personal networking is positively related to SME internationalisation.	Supported
<i>Research Question 2:</i> How do SME managers' informal inter-personal networks affect SME internationalisation?	Hypothesis 2: SME managers' informal inter-personal networking is negatively related to SME internationalisation.	Supported
<i>Research Question 3:</i> How does being a family firm influence the relationship between formal/informal inter-personal networks and SME internationalisation?	Hypothesis 3: The positive relationship between formal inter-personal networking and SME internationalisation is weaker for family firms than for non-family firms.	Supported
	Hypothesis 4: The negative relationship between informal inter-personal networking and SME internationalisation is weaker for family firms than for non-family firms.	Supported
<i>Research Question 4:</i> How do slack resources influence the relationship between formal/informal inter-personal networks and SME internationalisation?	Hypothesis 5: The positive relationship between formal inter-personal networking and SME internationalisation will first increase and then decrease with increases in (a) available, (b) potential, (c) recoverable organisational slack.	(a) Rejected (b) Rejected (c) Supported
	Hypothesis 6: The negative relationship between informal inter-personal networking and SME internationalisation is weaker for firms with more (a) available, (b) potential, (c) recoverable organisational slack.	Rejected

Chapter 6: Discussion

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6.1 INTRODUCTION

This chapter discusses the findings of this study. First, we discuss the results of the hypotheses testing in regards to research question 1 and research question 2. We then continue with the results of the hypotheses testing and its implications for research question 3 and research question 4.

6.2 RESEARCH QUESTION 1&2: HOW DO SME MANAGERS' FORMAL/INFORMAL INTER-PERSONAL NETWORKS AFFECT SME INTERNATIONALISATION?

The main goal of this study was to determine the direction in which SME managers' inter-personal networks influence firm internationalisation extent. Conceptual arguments were made in which the formality of managers' inter-personal networks

determines whether the effect is positive or negative. Results of the study indicate that, while formal inter-personal networks positively influence SME internationalisation, the opposite holds for informal inter-personal networks. Table 22 shows support for both assertions. While the efficacy of inter-personal networks, in sum, has been documented in the literature by several studies (e.g., Manolova et al. 2010; Zhou et al., 2007), this study is the first to show that the direction of its effect depends on the formal versus informal mechanism within the network.

Applied to a broader context, the study findings reinforce the criticality of inter-personal networks for SME internationalisation. As outlined in chapter 2, inter-personal networks can offer SME managers several benefits. Contrarily, it was shown that those benefits may be countervailed by a number of deleterious effects. Interestingly, these results indicate that those advantages are more effectively embraced in a formalised network structure, whereas the negative implications seem more dominant in an informal network setting. Collectively, these findings signal that inter-personal networks can provide a significant advantage for managers in resource-constraint SMEs. For example, they can access knowledge and information that otherwise would be very problematic to obtain. On the other side, these findings point to a serious difficulty in relying on inter-personal networks to glean information, in particular, within an informal setting. Since no formal concept of reciprocity exists, these informal contacts require intensive time and energy. They have limited horizons, and by over-relying on these contacts, fruitful opportunities that lie beyond these horizons may be missed (Ellis, 2011). However, it is important to add, that inter-personal networks, both formal and informal, are “anything but homogenous” (Fernhaber & Li, 2012, p. 3). Hence, the extent to which positive or negative effects dominate the network outcome also largely depends on the way SME managers interact with their network partners.

Table 22: Multiple regression results in regards to research question 1&2

Hypotheses	Results
Hypothesis 1: SME managers' formal inter-personal networking is <i>positively</i> related to SME internationalisation.	Supported
Hypothesis 2: SME managers' informal inter-personal networking is <i>negatively</i> related to SME internationalisation.	Supported

6.3 RESEARCH QUESTION 3: HOW DOES BEING A FAMILY FIRM INFLUENCE THE RELATIONSHIP BETWEEN FORMAL/INFORMAL INTER-PERSONAL NETWORKS AND SME INTERNATIONALISATION?

Recent studies have shown that family firm internationalisation differs from that of non-family firms (e.g., Fernandez & Nieto, 2006; Sciascia et al., 2012). Using four indicators of internationalisation, Gomez-Mejia et al. (2010) found that family firms exhibit lower levels of internationalisation than non-family firms on any of the indicators. This dissertation's study results, shown in Table 23 may provide one potential explanation of this finding. As predicted, we found that the positive impact of formal inter-personal networks on SME internationalisation is weaker for family firms. This means that, due to the conceptual arguments provided earlier, family firm managers cannot exploit formal inter-personal network benefits as fully as non-family firm managers can. This negatively impacts the extent of their firms' internationalisation. These results highlight that family firm characteristics, such as scepticism towards external partners, hinder the successful exchange of information between network partners. As a result, family firms may struggle when expanding into foreign markets.

On the other hand, we found that the negative impact of informal inter-personal networks on SME internationalisation is weaker if the SME is a family firm. This should result in a higher internationalisation output in comparison to non-family firms. Hence, the same specific characteristics of family firms (e.g., scepticism towards external partners) that hinder the successful exploitation of formal inter-personal network benefits help to weaken the negative impact of informal inter-personal networks. Interestingly, when examining this relationship without distinguishing inter-personal networks based on their formality, no significant results could be detected (Eberhard & Craig, 2012). These results show that the prohibiting effect of family firms on the formal inter-personal network – internationalisation relationship and the facilitating effect of family firms on the informal inter-personal network – internationalisation relationship cancel each other out. Hence, it is only through distinguishing between formal and informal inter-personal networks that this results becomes observable.

Table 23: Multiple regression results in regards to research question 3

Hypotheses	Results
Hypothesis 3: The positive relationship between formal inter-personal networking and SME internationalisation is weaker for family firms than for non-family firms.	Supported
Hypothesis 4: The negative relationship between informal inter-personal networking and SME internationalisation is weaker for family firms than for non-family firms.	Supported

6.4 RESEARCH QUESTION 4: HOW DO SLACK RESOURCES INFLUENCE THE RELATIONSHIP BETWEEN FORMAL/INFORMAL INTER-PERSONAL NETWORKS AND SME INTERNATIONALISATION?

Lastly, this empirical analysis displays a curvilinear moderating effect of recoverable slack on the formal inter-personal networks – internationalisation relationship. SME managers utilise formal inter-personal networks as a way to internationalise their businesses. However, this effort depends on the firm's resource condition. This finding reinforces the Park et al. (2002) notion about the importance of firms' internal resource capabilities in the exploitation of opportunities derived from outside sources. Firms that lack sufficient resources have greater problems to benefit from their managers' formal inter-personal networks. The more slack resources the firm has available, the more risk-taking and pro-active its managers react on arising opportunities; however, when the firm has very high levels of excessive resources, this impetus turns negative. Managers become less entrepreneurial and more inward-looking, which ultimately lessens the positive impact of formal inter-personal networks on firm internationalisation. Interestingly, this significant effect could only be detected for recoverable slack. This could make sense, considering the immediate impact of recoverable slack on firm operations. Hence, "constraints on recoverable slack are likely to be more salient to managers than constraints on potential or available slack" (Miller & Leiblein, 1996, p.103). This study's results suggest that firms should not pursue extreme levels of organisational slack, but instead hold appropriate levels to capitalise on opportunities arising from formal inter-personal networks.

Another interesting finding of this study is that, contrary to the hypothesis, organisational slack has no moderating effect on the informal inter-personal network – internationalisation relationship. This makes intuitive sense, if we consider that the

principle of reciprocity in informal inter-personal networks is often one-sided. Informal inter-personal network partners offer their resources without expecting immediate compensation. Hence, our argument that organisational slack decreases the conflict potential among network partners may not be as relevant for informal contacts. Knowledge-sharing risks exist irrespective of the firm's resource endowment. It may even be possible that high levels of organisational slack provoke increased knowledge-sharing risks. In a recent psychological study, Gino and Pierce (2009) showed that the likelihood of individuals to behave unethically increases in the presence of abundant wealth because feelings of inferiority and resentment arise in situations when individuals note that they lack resources others have, even when the possessor of wealth is a group or organisation. Consequently, the presence of abundant wealth stimulates feelings of envy, which increases people's likelihood to behave unethically. The results of this study in regard to research question 4 are displayed in Table 24.

Table 24: Multiple regression results in regards to research question

Hypotheses	Results
<p>Hypothesis 5: The positive relationship between formal inter-personal networking and SME internationalisation will first increase and then decrease with increases in (a) available, (b) potential, (c) recoverable organisational slack.</p> <p>Hypothesis 6: The negative relationship between informal inter-personal networking and SME internationalisation is weaker for firms with more (a) available, (b) potential, (c) recoverable organisational slack.</p>	<p>(a) Rejected (b) Rejected (c) Supported</p> <p>Rejected</p>

6.5 IMPLICATIONS OF THIS STUDY

6.5.1 KEY FINDINGS AND THEORETICAL IMPLICATIONS

The findings of this dissertation suggest several important conclusions and implications. The major theoretical contribution of this study relates to the detection of an opposing effect of formal and informal inter-personal networks on SME internationalisation. Today, few large-scale studies have established an economic link between managers' inter-personal networks and the actual internationalisation outcome (Boehe, 2012; Ellis, 2011). Those studies that have addressed this question have overlooked specific attributes of inter-personal network dimension, making it difficult to reach satisfying conclusions (Inkpen & Tsang, 2005). For example, although prior research has acknowledged the differential benefits and costs of formal versus informal inter-personal networks (Birley, 1985), the implications of inter-personal network formality for internationalisation have not yet been explored (Fernhaber & Li, 2012). As predicted, the results of this study – based on a representative longitudinal sample of Australian SMEs – establish the existence of a significant positive relationship between formal inter-personal networks and SME internationalisation. On the other hand, the results indicate a negative relationship between informal inter-personal networks and SME internationalisation. Inter-personal networks confer specific advantages and disadvantages to firms' internationalisation. In the case of informal inter-personal networks, however, the negative aspects seem to outweigh the advantages. This finding contributes to theory in so far that few studies consider the potential negative effects associated with using inter-personal networks (Ellis, 2011). Past studies could not

identify how and under what conditions the negative effects of inter-personal networks arise (Andersen, 2006).

The second contribution to theory involves the moderating effect of the SME of being a family firm on the relationship between inter-personal networks and firm internationalisation. Research suggests that the complexities unique to family firms distinguish them from firms with different ownership structures in their internationalisation behaviour (e.g., Bell et al., 2004; Fernandez & Nieto, 2006; George et al., 2005). In theory, being a family business can entail specific competitive advantages (Habbershon & Williams, 1999), but also brings some particular problems for internationalisation. This study demonstrates that family firm managers can exploit positive benefits from their formal inter-personal networks less effectively than non-family firm managers can, which may explain why family firms struggle to expand their businesses abroad. On the other side, this study also shows that the negative effects of informal inter-personal networks are less pronounced in family firms. These findings contribute to theory because prior inter-personal network – internationalisation studies have not addressed the family ownership structure at all or did not differentiate inter-personal networks based on their formality and hence could not establish a moderating effect.

The third contribution to theory relates to the moderating effect of recoverable organisational slack resources. Firms have different resource endowments, and these differences moderate how managers respond to external stimuli (Chattopadhyay et al., 2001; Madhavan et al., 1998). However, to date, no study has examined how these resources influence the inter-personal network – internationalisation relationship. This study's findings provide empirical evidence of a curvilinear moderating effect. The positive association between formal inter-personal networks and SME

internationalisation increases with more recoverable organisational slack. This relationship, however, reverses in cases of abundant recoverable organisational slack. Consequently, this finding contributes to theory by incorporating resource conditions as an intervening factor in the inter-personal network – internationalisation relationship.

6.5.2 IMPLICATIONS FOR SME MANAGERS AND POLICY MAKERS

The findings in this study have important implications for managerial practice. SME managers need to consider the formality of their inter-personal networks when executing internationalisation strategies. While informal inter-personal networks seem easily accessible at the early stages of firms' internationalisation, as international commitment increases, those ties should be replaced by more formal network partners. This study emphasises the benefits from those formal inter-personal networks, while the potential drawbacks are minimised through formalised reciprocal commitments. SME managers ought to be careful when they rely on their informal inter-personal contacts. While these networks provide certain benefits, the potential disadvantages seem to outweigh the benefits. The large time commitment, increased knowledge-sharing risks and restricted strategic options resulting from informal inter-personal networks appear to have a negative effect on firms' internationalisation output. Consequently, SME managers should constantly monitor the quality of their inter-personal networks and counteract any adverse effects.

This study's findings further reinforce SME managers' responsibility for their firms' slack resources. The study demonstrated that a certain level of recoverable organisational slack benefits international growth strategies derived from formal inter-personal networks. An abundance of recoverable organisational slack, however, may

lead to escalating commitment and missing growth intentions, both which lead to decreased firm internationalisation. These results suggest that SME managers should hold a minimum level of recoverable organisational slack in order to be able to react to opportunities that may arise from formal inter-personal networks. Nevertheless, they should carefully monitor the amount of slack and scale down resources in cases of abundant recoverable organisational slack.

For family firm managers, this study shows that family firms are less likely to profit from formal inter-personal networks, whereas the negative impact of informal inter-personal networks seems to be less threatening than for non-family firms. While the lack of trust and increased suspicion towards non-family members protects family firms from the negative effects of informal inter-personal networks, the same attributes hinder the positive role of formal inter-personal networks. The study's findings suggest that if family firms want to pursue international expansion, they should limit their scepticism towards inter-personal network contacts based on formalised structures. At the same time, they should remain cautious towards inter-personal networks that are not formalised.

Finally, this study has important implications for policy makers. SMEs play a dominant role in most economies, and facilitating their international involvement is widely recognised as an important public policy priority (Bell et al., 2004; McNaughton & Bell, 1999). Thereby, most governments have introduced 'traditional' export promotion schemes that provide export advice and subsidies, among others (Hamill, 1997). This study's findings suggest that policy makers need to consider export promotion activities as much more than merely directly attempting to stimulate export activity. They can make better policies by actively encouraging formal inter-personal network activities for SME managers. In particular, firms in the early

internationalisation stages often do not have the stakeholder relationships and resources to engage in formal network activities. Government support schemes should focus on brokering such formalised network contacts. These indirect measures might be much more effective than direct export promotion activities.

6.6 LIMITATIONS OF THIS STUDY & FUTURE RESEARCH

The study findings need to be examined in the context of its limitations. First, data was collected exclusively in Australia, introducing a potential bias regarding the effects on internationalisation and thereby limiting generalisation of the findings to other countries. Due to its relatively small population of only 22 million (CIA, 2012), Australian firms are more dependent on international trade than firms from countries with larger domestic markets. Furthermore, cultural differences may have important implications regarding SME managers' networking behaviour. For example, SMEs in emerging economies, such as China, Brazil, and India often use tight personal connections (i.e., *guanxi* in China) to conduct business and understand economic transactions (Park & Luo, 2001; Redding & Hsiao, 1990). Comparative studies would clarify the importance of cultural differences for the inter-personal network – internationalisation relationship.

Second, although this study examines two important types of inter-personal networks, it does not capture the full range of potential relationships. Other types of networks exist, which include venture capitalists, ex-employers, and universities among others. Most research studies have concentrated on several specific network actors and thereby neglected other potential network actors. Future research is warranted in providing a more comprehensive view of inter-personal network relationships.

Third, as the network question was only asked in the 1995/1996 survey, this study assumes that the respondents did not change their networking behaviour significantly over the subsequent years. Further, the results may depend on other confounding variables for which we did not control. For example, Kontinen and Ojala (2011b) revealed that trade exhibitions play an important role in brokering inter-personal network relationships. Since the BLS did not include this variable, it is an area that future research could explore.

Fourth, the BLS dataset was collected at a time when information technology and social media use was limited. Therefore, future research should use more recent data to examine the relationship between inter-personal networks and SME internationalisation.

Fifth, the measurement for internationalisation does not capture the full complexity of the construct. For example, we did not consider the international scope (i.e., numbers of countries) or differentiate between modes of internationalisation (i.e., direct and indirect) and value chain activities involved in the process (i.e., backward and forward internationalisation). Therefore, further research should use more comprehensive measures of internationalisation to capture its full complexity.

Sixth, as with all previous networks - internationalisation research, this study cannot observe whether managers intentionally build up networks in order to internationalise. Hence, future research could investigate how internationalisation is different for firms that purposely form networks with the intention to internationalise as compared to firms that internationalise based on their a priori established networks.

In general, future research on SME internationalisation needs to provide a more comprehensive view of network relationships. With the rapid growth in technology over the past 15 years, new opportunities to communicate with numerous network ties have

developed. In future studies, scholars will need to incorporate these platforms, which may fundamentally change the way managers utilise their relationships.

6.7 CONCLUDING REMARKS

Previous research on SME internationalisation has mostly focused on inter-firm alliances and neglected the role of managers' inter-personal networks. Those studies that did focus on inter-personal networks were largely limited to exploratory and descriptive analysis. The few existing results are mixed and inconclusive, partially because the formality of inter-personal networks has not yet been explored. The aim of this dissertation was to test the actual impact of formal and informal inter-personal networks on SME internationalisation. The results suggest an opposing effect of formal and informal inter-personal networks on SME internationalisation. This finding contributes to theory because almost no other study has examined how various types of inter-personal networks differ in affecting firms' internationalisation. Further, this study demonstrates the moderating role of the SME of being a family firm as well as the role of recoverable organisational slack resources, two concepts that have been neglected in past network – internationalisation studies. This study provides the first longitudinal, large N-analysis incorporating established SMEs that differentiates inter-personal networks based on their formality and tests their actual impact on SME internationalisation. In sum, this dissertation resolves some questions regarding SME managers' inter-personal networks and firm internationalisation, yet also sheds light on the need for further research.

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Appendices

APPENDIX A: ANZSIC CLASSIFICATION

Code	Industry Description
100	Mining
200	Manufacturing
00	between 100 & 200 employees
21	Food, Beverage and Tobacco Manufacturing
22	Textile, Clothing, Footwear and Leather Manufacturing
23	Wood and Paper Product Manufacturing
24	Printing, Publishing and Recorded Media
25	Petroleum, Coal, Chemical and Associated Product Manufacturing
26	Manufacturing
27	Non-Metallic Mineral Product Manufacturing
28	Metal Product Manufacturing
29	Machinery and Equipment Manufacturing
300	Other Manufacturing
300	Construction
00	between 100 & 200 employees
41	General Construction
42	Construction Trade Services
400	Wholesale Trade
00	between 100 & 200 employees
45	Basic Material Wholesaling
46	Machinery and Motor Vehicle Wholesaling
47	Personal and Household Good Wholesaling
500	Retail Trade
00	between 100 & 200 employees
51	Food Retailing
52	Personal and Household Good Retailing
53	Motor Vehicle Retailing and Services
600	Accommodation, Cafes and Restaurants
00	between 100 & 200 employees
57	Accommodation, Cafes and Restaurants
700	Transport and Storage
800	Finance and Insurance
00	between 100 & 200 employees
73	Finance and Insurance
75	Services to Finance and Insurance
900	Property and Business Services
00	between 100 & 200 employees

77	Property Services
78	Business Services
1000	Cultural and Recreational Services
00	between 100 & 200 employees
91	Motion Picture, Radio and Television Services
92	Libraries, Museums and the Arts
93	Sport and Recreation
1100	Personal and Other Services
00	between 100 & 200 employees
95	Personal Services

APPENDIX B: SUB-INDUSTRY DISTRIBUTION OF SAMPLE

BLS Code	Industry Description	n	%
100	<i>Mining</i>	20	0.85%
200	<i>Manufacturing</i>		
00	between 100 & 200 employees	84	3.58%
21	Food, Beverage and Tobacco Manufacturing	106	4.52%
22	Textile, Clothing, Footwear and Leather Manufacturing	69	2.94%
23	Wood and Paper Product Manufacturing	49	2.09%
24	Printing, Publishing and Recorded Media	68	2.90%
25	Petroleum, Coal, Chemical and Associated Product Manufacturing	127	5.42%
26	Non-Metallic Mineral Product Manufacturing	49	2.09%
27	Metal Product Manufacturing	142	6.06%
28	Machinery and Equipment Manufacturing	258	11.01%
29	Other Manufacturing	69	2.94%
	Σ Manufacturing	1021	43.56%
300	<i>Construction</i>		
00	between 100 & 200 employees	4	0.17%
41	General Construction	39	1.66%
42	Construction Trade Services	68	2.90%
	Σ Construction	111	4.74%
400	<i>Wholesale Trade</i>		
00	between 100 & 200 employees	27	1.15%
45	Basic Material Wholesaling	97	4.14%
46	Machinery and Motor Vehicle Wholesaling	188	8.02%
47	Personal and Household Good Wholesaling	145	6.19%
	Σ Wholesale Trade	457	19.50%
500	<i>Retail Trade</i>		
00	between 100 & 200 employees	15	0.64%
51	Food Retailing	43	1.83%
52	Personal and Household Good Retailing	76	3.24%
53	Motor Vehicle Retailing and Services	94	4.01%
	Σ Retail Trade	228	9.73%
600	<i>Accommodation, Cafes and Restaurants</i>		
00	between 100 & 200 employees	2	0.09%
57	Accommodation, Cafes and Restaurants	69	2.94%
	Σ Accommodation, Cafes and Restaurants	71	3.03%
700	<i>Transport and Storage</i>	74	3.16%
800	<i>Finance and Insurance</i>		

00	between 100 & 200 employees	0	0.00%
73	Finance and Insurance	0	0.00%
75	Services to Finance and Insurance	43	1.83%
Σ Finance and Insurance		43	1.83%
<i>900 Property and Business Services</i>			
00	between 100 & 200 employees	10	0.43%
77	Property Services	60	2.56%
78	Business Services	175	7.47%
Σ Property and Business Services		245	10.45%
<i>1000 Cultural and Recreational Services</i>			
00	between 100 & 200 employees	6	0.26%
91	Motion Picture, Radio and Television Services	25	1.07%
92	Libraries, Museums and the Arts	2	0.09%
93	Sport and Recreation	12	0.51%
Σ Cultural and Recreational Services		45	1.92%
<i>1100 Personal and Other Services</i>			
00	between 100 & 200 employees	0	0.00%
95	Personal Services	29	1.24%
Σ Personal and Other Services		29	1.24%
<i>Totals</i>		2344	100%

APPENDIX C: AGE DISTRIBUTION OF SAMPLE

Age of business	n	%	Σ %
Less than 2 years old	96	4.10%	4.10%
2 years to less than 4 years	197	8.40%	12.50%
4 years to less than 6 years	225	9.60%	22.10%
6 years to less than 8 years	217	9.26%	31.36%
8 years to less than 10 years	258	11.01%	42.37%
10 years to less than 12 years	164	7.00%	49.37%
12 years to less than 14 years	97	4.14%	53.51%
14 years to less than 16 years	182	7.76%	61.27%
16 years to less than 18 years	128	5.46%	66.73%
18 years to less than 20 years	130	5.55%	72.28%
20 years to less than 22 years	43	1.83%	74.11%
22 years to less than 24 years	32	1.37%	75.48%
24 years to less than 26 years	128	5.46%	80.94%
26 years to less than 28 years	86	3.67%	84.61%
28 years to less than 30 years	70	2.99%	87.60%
30 or more years old	291	12.41%	
<i>Totals</i>	2344	100%	100%

APPENDIX D: DISTRIBUTION OF SAMPLE BY NUMBER OF EMPLOYEES

Size of business	n	%	Σ %
Micro businesses (< 5 employees)	316	13.48%	13.48%
Small-sized businesses (5 - 19 employees)	773	32.98%	46.46%
Medium-Sized businesses (20 - 199 employees)	1255	53.54%	100%

APPENDIX E: SURVEY INSTRUMENTS

Internationalisation

Please report the following information:
Value of exports
Sales of goods and services

Inter-Personal Networks

How frequently (during the year) did this business seek business information of advice from the sources below (1 = never; 2 = 1-3 times; 3 = more than 3 times)
External Accounts
Banks
Solicitors
Business consultants
Family or friends
Others in your industry
Local business
Industry association/Chamber of commerce
The Australian Taxation Office
Government small business agencies

Family Firm

Consider the business to be a family business
No
Yes
Why do you consider this a family business
Family members are:
Working directors or proprietors
No
Yes
Percentage breakdown of equity
Working owners
Non-working owners - family
Non-working owners - non family
Parent company
Other unrelated businesses
Other (including shareholders)

Organisational Slack

Please report the following information:
Current Assets
Current liabilities
Total debt
Total equity
Expenditure on R&D
Sales of goods and services

APPENDIX F: REGRESSION RESULTS FOR SUB-INDUSTRY CONTROLS

SME internationalisation (1995/1996 – 1997/1998) as a function of sub-industry classification (including all other control variables) (OLS, n = 2344; coefficients are unstandardised and robust standard errors are in parentheses)¹.

Predictor			
100	Mining	4.050	(5.444)
200	Manufacturing		
00	between 100 & 200 employees	7.471	(2.717)***
21	Food, Beverage and Tobacco Manufacturing	6.679	(2.449)***
22	Textile, Clothing, Footwear and Leather Manufacturing	7.116	(2.939)**
23	Wood and Paper Product Manufacturing	-1.219	(0.857)
24	Printing, Publishing and Recorded Media	4.509	(3.035)
25	Petroleum, Coal, Chemical and Associated Product Manufacturing	4.990	(1.849)***
26	Non-Metallic Mineral Product Manufacturing	4.156	(2.758)
27	Metal Product Manufacturing	1.487	(1.254)
28	Machinery and Equipment Manufacturing	7.051	(1.421)***
29	Other Manufacturing	3.931	(1.947)**
300	Construction		
00	between 100 & 200 employees	-1.255	(2.145)
41	General Construction	-1.571	(0.887)*
42	Construction Trade Services	-0.284	(0.764)
400	Wholesale Trade		
00	between 100 & 200 employees	4.013	(3.515)
45	Basic Material Wholesaling	0.115	(1.441)
46	Machinery and Motor Vehicle Wholesaling	1.120	(0.975)
47	Personal and Household Good Wholesaling	1.835	(1.586)
500	Retail Trade		
00	between 100 & 200 employees	-0.366	(1.482)
51	Food Retailing	-0.193	(0.897)
52	Personal and Household Good Retailing	-0.938	(0.815)
53	Motor Vehicle Retailing and Services	-0.843	(0.787)
600	Accommodation, Cafes and Restaurants		
00	between 100 & 200 employees	-2.709	(1.513)*
57	Accommodation, Cafes and Restaurants	0.502	(1.508)
700	Transport and Storage	2.055	(2.047)
800	Finance and Insurance		
75	Services to Finance and Insurance	-0.668	(1.024)
900	Property and Business Services		
00	between 100 & 200 employees	-1.644	(1.453)
77	Property Services	-0.385	(1.085)
78	Business Services	-0.156	(0.975)

¹ There are no firms in industry 800, 873 and 1100. I used industry 1195 as the benchmark industry.

1000	Cultural and Recreational Services		
00	between 100 & 200 employees	-4.609	(1.560)***
91	Motion Picture, Radio and Television Services	-1.838	(0.984)*
92	Libraries, Museums and the Arts	-1.310	(1.352)
93	Sport and Recreation	-0.475	(1.270)

* p<0.1; ** p<0.05; *** p<0.01

APPENDIX G: REGRESSION RESULTS FOR MODEL 1 WITH REMOVED OUTLIERS

SME internationalisation (1995/1996 – 1997/1998) as a function of formal and informal inter-personal networks (OLS, $n = 2293$; coefficients are unstandardised and robust standard errors are in parentheses).

Predictor	Regression model 1 reduced	Regression model 2 reduced
Intercept	-1.352 (0.775)	-1.081 (0.828)
Firm size (ln)	0.348 (0.195)*	0.201 (0.197)
Firm age	-0.001 (0.042)	-0.009 (0.042)
Family firm	-0.506 (0.368)	-0.519 (0.361)
Available slack	-0.002 (0.004)	-0.001 (0.005)
Potential slack	-0.001 (0.001)	-0.001 (0.001)
Recoverable slack	16.297 (4.709)***	15.597 (4.759)***
Increase production	0.344 (0.443)	0.293 (0.444)
Open new locations	0.575 (0.563)	0.455 (0.568)
Introduce new products	0.548 (0.469)	0.592 (0.466)
Business plan	0.721 (0.450)	0.588 (0.449)
Budget forecasting	0.824 (0.414)**	0.712 (0.409)*
Income/expenditure reports	-1.018 (0.498)**	-1.287 (0.523)**
Comparison other businesses	0.118 (0.493)	0.216 (0.515)
Education	0.737 (0.212)***	0.757 (0.213)***
Experience	0.003 (0.016)	0.003 (0.016)
Formal inter-personal networks		0.225 (0.082)***
Informal inter-personal networks		-0.310 (0.113)***
R^2	0.139	0.146
ΔR^2		0.007
F	4.727***	4.773***
ΔF		5.191***

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

APPENDIX H: BOOTSTRAPPED REGRESSION RESULTS FOR MODEL 1

SME internationalisation (1995/1996 – 1997/1998) as a function of formal and informal inter-personal networks (OLS, $n = 2344$; bootstrap results based on 1000 bootstrap samples; 2-tailed with 95% interval level; coefficients are unstandardised and bootstrapped standard errors are in parentheses).

Predictor	Regression model 1 bootstrap		Regression model 2 bootstrap	
Intercept	-1.004	(1.314)	-0.585	(1.491)
Firm size (ln)	0.111	(0.388)	-0.156	(0.402)
Firm age	0.038	(0.073)	0.023	(0.072)
Family firm	-1.911	(0.617)***	-1.961	(0.628)***
Available slack	-0.008	(0.016)	-0.006	(0.014)
Potential slack	-0.002	(0.003)	-0.001	(0.003)
Recoverable slack	20.793	(11.32)**	19.339	(10.162)**
Increase production	0.452	(0.740)	0.355	(0.648)
Open new locations	-0.534	(0.825)	-0.748	(0.773)
Introduce new products	0.305	(0.722)	0.353	(0.762)
Business plan	1.871	(0.810)**	1.614	(0.808)**
Budget forecasting	1.900	(0.787)**	1.658	(0.718)**
Income/expenditure reports	-1.269	(1.002)	-1.800	(1.041)
Comparison other businesses	-0.333	(0.841)	-0.208	(0.830)
Education	0.934	(0.397)**	0.969	(0.373)**
Experience	-0.011	(0.032)	-0.011	(0.034)
Formal inter-personal networks			0.410	(0.158)**
Informal inter-personal networks			-0.482	(0.213)**

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

APPENDIX I: BOOTSTRAPPED REGRESSION RESULTS FOR MODEL 2A

SME internationalisation (1995/1996 – 1997/1998) as a function of formal and informal inter-personal networks (OLS, n = 1517; bootstrap results based on 1000 bootstrap samples; 2-tailed with 95% interval level; coefficients are unstandardised and bootstrapped standard errors are in parentheses).

Predictor	Regression model 2a bootstrap	
Intercept	0.507	(3.051)
Firm size (ln)	-0.590	(0.457)
Firm age	-0.004	(0.089)
Family firm	-2.708	(1.989)
Available slack	-0.016	(0.052)
Potential slack	-0.004	(0.004)
Recoverable slack	16.544	(11.999)*
Increase production	0.470	(1.005)
Open new locations	-1.559	(1.057)
Introduce new products	-0.514	(0.994)
Business plan	1.571	(1.043)
Budget forecasting	1.484	(0.981)
Income/expenditure reports	-2.212	(1.446)
Comparison other businesses	-0.147	(1.078)
Education	0.812	(0.550)
Experience	0.012	(0.040)
Formal inter-personal networks	1.039	(0.379)**
Informal inter-personal networks	-1.266	(0.713)*
Formal inter-personal networks x family firm	-0.656	(0.394)*
Informal inter-personal networks x family firm	1.354	(0.728)*

* p<0.1; ** p<0.05; *** p<0.01

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APPENDIX J: VIF FOR MODEL 3A AND 3B WITH STANDARDISED PREDICTORS

Variance inflation factors for standardised independent variables in model 4a and 4b (interaction terms for Hypothesis 5 and Hypothesis 6 entered stepwise).

Predictor	VIF
Firm size (ln)	1.86
Firm age	1.26
Family firm	1.17
Available slack	4.61
Available slack squared	4.52
Potential slack	8.92
Potential slack squared	9.90
Recoverable slack	6.56
Recoverable slack squared	7.41
Increase production	1.32
Open new locations	1.15
Introduce new products	1.38
Business plan	1.44
Budget forecasting	1.84
Income/expenditure reports	1.73
Comparison other businesses	1.32
Education	1.15
Experience	1.19
Formal inter-personal networks	2.19
Informal inter-personal networks	1.51
Formal inter-personal networks x available slack	4.36
Formal inter-personal networks x available slack squared	4.33
Formal inter-personal networks x potential slack	7.75
Formal inter-personal networks x potential slack squared	8.58
Formal inter-personal networks x recoverable slack	5.23
Formal inter-personal networks x recoverable slack squared	6.54
Informal inter-personal networks x available slack	3.26
Informal inter-personal networks x potential slack	2.83
Informal inter-personal networks x recoverable slack	2.52

APPENDIX K: BOOTSTRAPPED REGRESSION RESULTS FOR MODEL 3A AND 3B

SME internationalisation (1995/1996 – 1997/1998) as a function of formal and informal inter-personal networks (OLS, $n = 2344$; bootstrap results based on 1000 bootstrap samples; 2-tailed with 95% interval level; coefficients are standardised and bootstrapped standard errors are in parentheses).

Predictor	Regression model 3c bootstrap		Regression model 3d bootstrap	
Intercept	4.262	(0.460)***	4.267	(0.353)***
Firm size (ln)	-0.164	(0.492)	-0.118	(0.525)
...				
Formal inter-personal networks	1.324	(0.558)**	1.376	(0.496)**
Informal inter-personal networks	-0.820	(0.342)**	-0.830	(0.361)**
Hypothesis 5:				
Formal inter-personal networks x available slack	-0.645	(0.777)		
Formal inter-personal networks x available slack squared	0.070	(0.096)		
Formal inter-personal networks x potential slack	0.134	(0.517)		
Formal inter-personal networks x potential slack squared	-0.008	(0.059)		
Formal inter-personal networks x recoverable slack	1.722	(1.087)*		
Formal inter-personal networks x recoverable slack squared	-0.147	(0.097)*		
Hypothesis 6:				
Informal inter-personal networks x available slack			-0.154	(0.285)
Informal inter-personal networks x potential slack			0.210	(0.122)*
Informal inter-personal networks x recoverable slack			-0.759	(0.722)

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$